SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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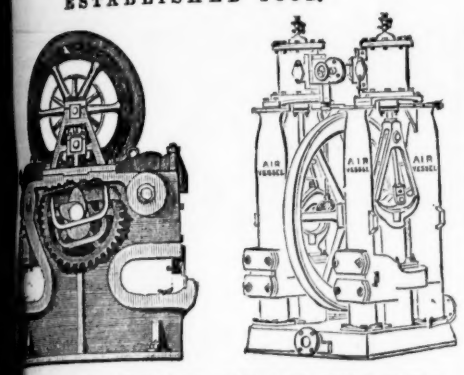

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PARIS, BRONZE MEDAL, 1867.

ORDER OF THE CROWN OF PRUSSIA.

FALMOUTH, SILVER MEDAL, 1867.

A DIPLOMA—HIGHEST OF ALL AWARDS—given by the Geographical Congress, Paris, 1875—M. Favre, Contractor, having exhibited the McKean Drill alone as the MODEL BORING MACHINE for the ST. GOTHARD TUNNEL.

SILVER MEDAL of the Highland and West of Scotland Agricultural Society, 1875—HIGHEST AWARD.

At the south end of the St. Gothard Tunnel, where

THE McKEAN ROCK DRILLS

Are exclusively used, the advance made during eight consecutive weeks, ending February 7, was 24·90, 27·30, 24·80, 26·10, 28·30, 27·10, 28·40, 28·70 metres. Total advance of south heading during January was **121·30 metres, or 133 yards.**

In a series of comparative trials made at the St. Gothard Tunnel, the McKean Rock Drill continued to work until the pressure was reduced to one-half atmosphere (7½ lbs.), showing almost the entire motive force to be available for the blow against the rock—a result of itself indicating many advantages.

The GREAT WESTERN RAILWAY has adopted these Machines for the SEVERN TUNNEL; the LONDON AND NORTH-WESTERN RAILWAY for the FESTINIOG TUNNEL: and the BRITISH GOVERNMENT for several Public Works. A considerable number of Mining Companies are now using them. Shafts and Galleries are driven at from three to six times the speed of hand labour, according to the size and number of machines employed, and with important saving in cost. The ratio of advantage over hand labour is greatest where the rock is hardest.

These Machines possess many advantages, which give them a value unapproached by any other system of Boring Machine.

THE McKEAN ROCK DRILL IS ATTAINING GENERAL USE THROUGHOUT THE WORLD FOR MINING, TUNNELLING, QUARRYING, AND SUB-MARINE BORING.

The McKEAN ROCK DRILLS are the most powerful—the most portable—the most durable—the most compact—of the best mechanical device. They contain the fewest parts—have no weak parts—act without SHOCK upon any of the operating parts—work with a lower pressure than any other Rock Drill—may be worked at a higher pressure than any other—may be run with safety to FIFTEEN HUNDRED STROKES PER MINUTE—do not require a mechanic to work them—are the smallest, shortest, and lightest of all machines—will give the longest feed without change of tool—work with long or short stroke at pleasure of operator.

The SAME Machine may be used for sinking, drifting, or open work. Their working parts are best protected against grit and accidents. The various methods of mounting them are the most efficient.

N.B.—Correspondents should state particulars as to character of work in hand in writing us for information, on receipt of which a special definite answer, with reference to our full illustrated catalogue, will be sent.

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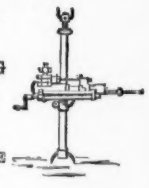

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2.—ONLY ABOUT ONE-FOURTH OF THE SPACE USUALLY OCCUPIED BY DRESSING-FLOORS IS REQUIRED.

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4.—THEY ARE THE ONLY MACHINES THAT MAKE THE ORE CLEAN FOR MARKET AT ONE OPERATION.

They have been supplied to some of the principal mines in the United Kingdom and abroad—viz.,

The Greenside Mines, Patterdale, Cumberland; London Lead Company's Mines Darlington, Colberry, Nanthead, and Bollyhope; the Stonecroft and Greyside Mines, Hexham, Northumberland; Wanlockhead Mines, Abington, Scotland (the Duke of Buccleuch's); Bewick Partners, Haydon Bridge; the Old Darren, Esgairmwyn, and Ystumtuen Mines, in Cardiganshire; Mr. Beaumont's W.B. Mines, Darlington; also Mr. Sewell, for Argentiferous Copper Mines, Peru; the Bratsberg Copper Mines, Norway, and Mines in Italy, Germany, United States of America, and Australia, from all of whom certificates of the complete efficiency of the system can be had.

WASTE HEAPS, consisting of refuse chats and skimpings of a former washing, containing a mixture of lead, blende, and sulphur, DRESSED TO A PROFIT.

Mr. BAINBRIDGE, C.E., of the London Company's Mines, Middleton-in-Teesdale, by Darlington, writing on the 20th March, 1876, says—"The yearly profit on our Nanthead waste heaps amounted last year to £600, besides the machinery being occupied for some months in dressing ore-stuff from the mines. Of course, if it had been wholly engaged in dressing wastes our returns would have been greater; but it is giving us every satisfaction, and bringing the waste heaps into profitable use, which would otherwise remain dormant."

Mr. T. B. STEWART, Manager of the Duke of Buccleuch's Mines, Wanlockhead, Abington, N.B., writing on 20th March, 1876, says—"I have much pleasure in stating that a full and superior set of your Ore Dressing Machinery has been at work at these mines for fully a month, and each day as the moving parts become smoother, and those in charge understand the working of the machinery better, it gives increasing satisfaction, the ore being dressed more quickly, cheaply, and satisfactorily than by any other method."

Mr. BAINBRIDGE, speaking of machinery supplied Colberry Mines, says—"Your machinery saves fully one-half on old wages, and vastly more on the wages we have now to pay. Over and above the saving in cost is the saving in ore, which is not much short of 10 per cent."

GREENSIDE MINE COMPANY, Patterdale, near Penrith, say—"The separation which they make is complete."

Mr. MONTAGUE BEALE says—"It will separate ore, however close the mechanical mixture, in such a way as no other machines can do."

Mr. C. DODSWORTH says—"It is the very best for the purpose and will do for any kind of metallic ores—the very thing so long needed for dressing-floors."

Drawings, specifications, and estimates will be forwarded on application to—

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SELF-GOVERNING PUMPING ENGINE,

FOR ECONOMICAL USE OF STEAM.

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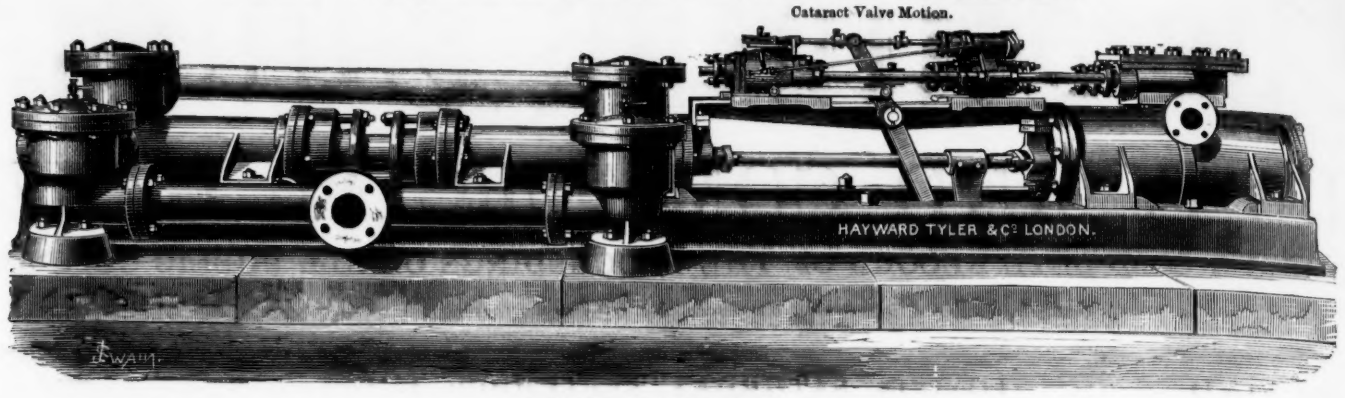

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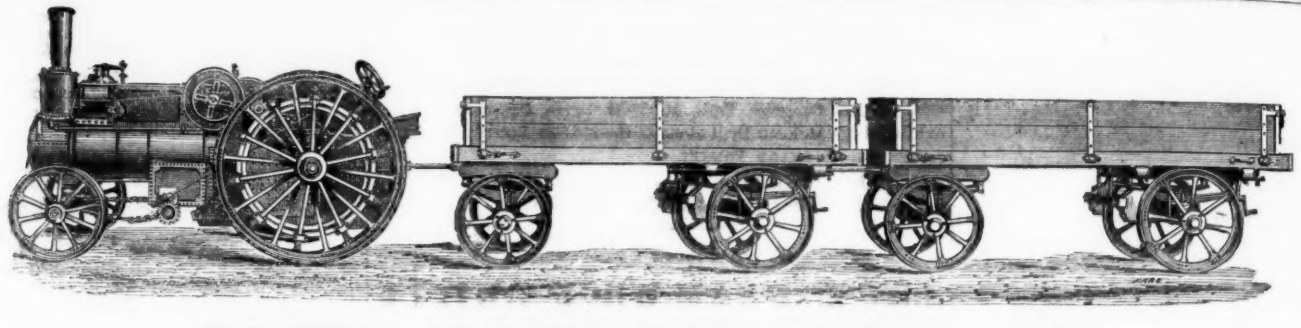

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We claim 40 per cent. greater effective drilling power, and offer to compete with any machine of its class.

See following extracts from the reports of Judges in awarding Medals:—

"2. Its simple construction ensures durability, &c.

"4.—The steam or air cushions at each end of cylinder effectually protect from injury

"5. Its having an automatic feed, giving it a steady motion, &c.

"6. Its greater steadiness and absence of jar and vibration experienced in other drills, which is very destructive to their working parts, &c.

"7. Its greater power is some FORTY PER CENT. in favour of the Ingersoll."

Medals awarded for several years in succession "For the reason that we adjudge it so important in its use and complete in its construction as to supplant every article previously used for accomplishing the same purpose."

Estimates given for Air Compressors and all kinds of Mining Machinery. Send for Illustrated Catalogues, Price Lists, Testimonials, &c., as above.

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from the very best quality of charcoal iron and steel wire.

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The working parts are made of the toughest steel and phosphor-bronze—steel castings are also used as to combine strength with light weight.

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Of the simplest and best construction.

Combined Water-pressure Engines and Air-compressor

Giving most excellent results.

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STONE BREAKER,

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Machines with combined Vertical Jaw and

CUBING ROLLER.

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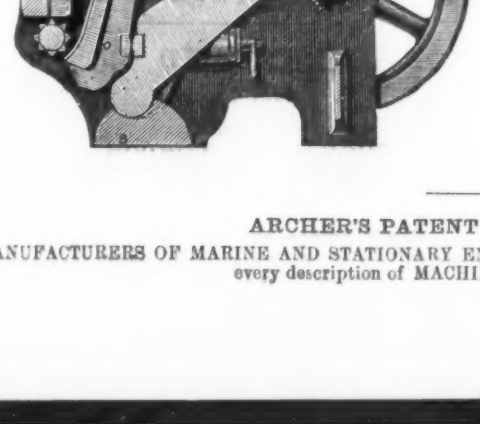
Simple Machines, with plain Vertical Jaws, without Roller.



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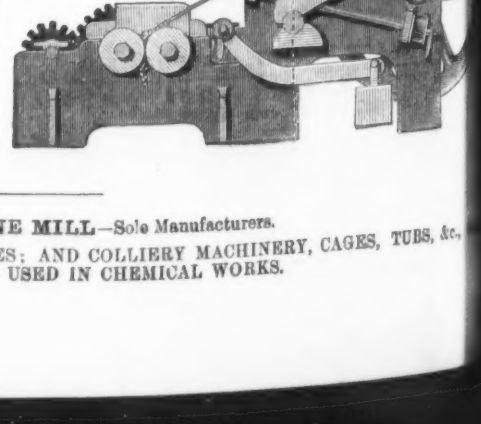

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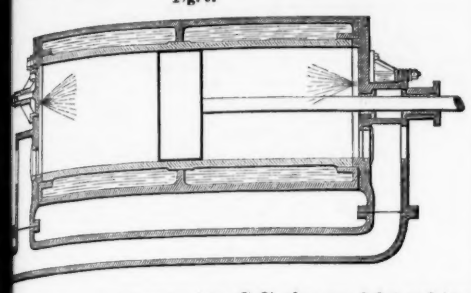
Original Correspondence.

ROCK-BORING MACHINERY—No. V.

MOONTA COMPRESSOR.—This compressor is designed to run at a high or low speed, and to furnish a satisfactory proportion of power per unit of steam power expended. In general it (Fig. 5) is not unlike the Colladon and Blanzy compressors, but it differs in the one in the piston and rod, which are solid instead of being hollow, and in the other by the employment of gun metal instead of leather valves. The internal cylinder, *A*, of brass, for the Moonta Mines, South Australia, is surrounded by a cast-iron cylinder, *B*. Through the annular space, E, a constant flow of water is maintained.

Fig. 5.



At each cover is inserted water jets, *C C'*, also one inlet and two outlet valves. The seatings of the inlet valves are shown, not the valves themselves; the bonnets outside of the valves are also removed. The outlet pipe, D, is placed at the bottom of the cylinder. For the purpose of forcing water into the cylinder and dividing the water into fine spray, no matter what the tension of the air may be, a small hydraulic accumulator is employed. The engine driving the compressor is provided with steam and expansion valve; the latter so arranged as to be instantly varied during the running of the piston. One of these compressors is erected at the Foxdale Mines, Isle of Man, but at that place the spray jet is to be maintained by means of an air vessel. A third is nearly complete for Wheal Agar, Cornwall:—

	Moonta.	Foxdale.	Wheal Agar.
Diameter of air pump	In. 13	... 20	... 18
Length of stroke	... 36	... 48	... 60

THE POWLER COMPRESSOR.—At the Powell Duffryn Collieries, South Wales, a large compressing engine is erected. The steam cylinder driving the compressors are coupled together at right angles, and have 34 in. steam and 40 in. air cylinders, the stroke being 4ft. The steam at a pressure of 70 lbs. per square inch is cut off at ½ stroke, while the air is compressed to 40 lbs. per inch. The inlet valves, three in each cylinder cover of the air cylinders, are of cast-iron with leather flaps. The outlet valves, two in each cover, are of brass, with mitre faces 1¼ in. long, inclined at an angle of 45° to the valve spindle. Each air cylinder is set in a trough of water, but no spray jet is forced into the interior during the compression of the air. The engines at 20 revolutions, or a piston speed of 160 ft. per minute, indicate 482-horse power.

Area of air cylinder	1256 inches.
Contents of stroke	104·6 cub. feet.
Contents per minute	4185 „
Ditto, at 67 per cent. of the stroke ...	2804 „
Compressed to 45 lbs. per inch...	934 „
Area of three inlet valves	64·8 sq. inches
Area of two outlet valves	43·2 „

THE SPRINGWOOD TUNNEL.—The compressors in use at this tunnel are mounted on the receiver. The air cylinders surrounded with water, double acting, 16 in. diameter and 30 in. stroke. At a speed of 30 revolutions per minute sufficient air is compressed to run two 20 in. the cylinders of which are 4 in. diameter.

The cost of compressing machinery may be regarded at present as a great drawback to the rapid introduction of rock drills. As in all new and important inventions, many parts and details are subject to modification and improvement. At the same time men must be educated in the use of new appliances.

In addition, prejudice, ignorance, and misrepresentation of facts have to be disposed of—not by argument or verbal assertions, but by entire success not more strictly of a technical than of a money character. There are now many people skilled in the running of boring machines, so that success is becoming a rule, not an exception. Still, in a period of transition from one condition of things to another, the outlay of a serious sum of money must in many instances be but cautiously and doubtfully undertaken. The double Sommeiller compressor at the Blanzy Mines, with boilers, air receivers, and buildings, cost 6000*l*. The Cockerill Foundry, near Liege, supply a pair of twin engines and compressors, sufficient to drive four to six of the Dubois and François borers, without boilers or connections, for 1000*l*. At the Anzen Mines, in France, a double compressor cylinder, 18 in. diameter and 4½ ft. stroke, with two receivers, connections, and foundations complete, cost 2080*l*. At Dannemora, where a Sommeiller compresser was attached to an engine and boiler previously erected, the cost including an air receiver having a capacity of 880 cubic feet, was 1235*l*. At Minera a double cylinder compressor engine, two 10-in. compressors, 30-in. stroke, irrespective of boiler and erection, cost about 350*l*.

Ingersoll's compressors are made in four distinct sizes, No. 2 being sufficiently powerful when worked at a maximum velocity to run one of McKean's 3½-in. cylinder machines, the cost of engine and compressor complete being 1512*l*.

The objections which may be urged against high-speed compressors are:—1. The rapidity with which heat is accumulated within the cylinder frequently overheating the various parts connected with it.—2. Loss of air with dry metallic spring pistons amounting from 5 to 10 per cent. of the stroke and increasing largely with low piston speeds.—3. The voidance of air from the cylinder during the closing of the inlet valves; in some cases a serious percentage of the contents of the stroke.—4. The loss of useful effect of the steam piston consequent on the passage of air from front to back of spring-ring pistons, and on the voidance of air from the cylinder.—5. The rapid wear and tear of parts incident to a high piston speed, and the increasing attention necessary on the part of the machinist to keep the moving surfaces correct one with another as the use of the apparatus lengthens.—6. The liability of the valves to breakage, the force or impact of the shutting blow increasing with the pressure, as applied by the square of the velocity. Against low speed wet compressors, it may be alleged that the piston speed is low, the apparatus large in proportion to the power it will afford, and that the first costs if distributed on the horsepower of the compressor exceedingly high.

In mines simplicity and certainty of action of the mechanical appliances is of the highest moment. Many undertakings cannot incur the expense of retaining the services of a skilled engineer and one of two mechanics, and hence, however excellent a machine may be, if its parts are complicated, necessitating extreme care and watchfulness in their use, the whole are likely to fail. Again, when the cost month after month, extending perhaps into years, is defrayed from a body of shareholders, in many instances barely able to obtain their contributions, it is of considerable moment that the mechanical appliances should combine economy with strength and simplicity. In the Sommeiller water-compressor Gralliot's experiments showed that only 35 per cent. of the boiler-power was charged to the receiver, and only 20 to 25 per cent. of a boiler horse-power utilised in the boring machines.

At Altenberg the Prussian engineers entrapped, as it were, into the cylinder of a wet compressor 96 per cent. of the volume due to the stroke. At St. Gothard the Colladon compressors are reckoned to compress a volume of air equal to 70 per cent. of the stroke. Now, if the equivalent of a boiler horse-power in a high-pressure engine is 6 lbs. of coal per hour, it follows that a horse-power in the receiver is represented by about 18 lbs. of coal, and in the boring machine by 24 lbs. of coal per hour. If, however, only 70 parts of air per stroke is obtained against 96 in the compressor, the weight of coal per horse-power in the receiver will be increased to 24½ lbs., and in the boring machine to near 33 lbs. per horse-power per hour. With wet pumps overheating of the air and the cylinder takes place only in a very minor degree, the temperature reaching at the utmost only from 77° to 80° Fahr., whilst with dry pumps the temperature at high velocities and pressures reaches 175° Fahr.

JOHN DABLINGTON.

STAMPING MACHINERY.

SIR,—Will you kindly find space in the Journal for the following remarks upon the statement made by "M. P." in your issue of the 18th inst., in a table given of the effective power of American stamping machinery in comparison with the Elephant Flexible Stamps. I do not think such a statement should go unchallenged. It is evident from the table given by "M. P." that something more is required to explain the wide difference in the effect of the various mills. Take, for instance, No. 2 stamp, as given in table, of 750 lbs., lifts 7½ in. high 87 times per minute, crushing 1·57 ton in 24 hours, and requires 1½-horse power; and No. 7 stamp, of 950 lbs., lifts 10 in. high 90 times per minute, crushing 2·65 tons in 24 hours, and requires 1½-horse power. It is unnecessary to go into figures, as the difference is so great both in the weight lifted and in the amount of stone crushed that it shows plainly in the statement.

I will endeavour to show the reason of this difference. It is well known that with stamping machinery the first thing to be studied is the best method of reducing stone to powder with the least possible power; and, secondly, how to get clear of the stone from the mortar, or stamper box, as soon as it is sufficiently reduced. It has been proved beyond all doubt that when it is required to thoroughly pulverise the stone stamps are the most effective of all crushing appliances. In each of the above-mentioned stamps 1½-horse power is given as required to perform the work in 24 hours. If this is correct, which I question, No. 2 stamp must be very defective, the friction in lifting being so great that the power required to do the work is much increased. No. 7 stamp is constructed and lifted on a far better principle, as it shows that a much heavier stamper is lifted a greater number of times per minute. With regard to the amount of rock crushed, the difference is still greater, which must be attributed in great measure to the screens being punched to unequal gauge, as it is obvious that the crushed rock would have passed more readily through the screen of larger gauge, but the pulverisation would not be so perfect.

With regard to No. 8 stamp, I will merely say that in practice it is, to say the least, imprudent to drive the stamp 90 drops with 10-in. lifts. I should expect to find the stamper meet the cam, or lifter, at every drop. "M. P." will pardon me for being sceptical as to the results obtained from the Elephant Flexible Stamp, for if it is capable of reducing 13·50 tons of stone in 24 hours, I cannot understand it possible to force that amount of stuff through a properly guaged screen in the time named. I shall look for some further explanation of the stamper. I am surprised to find such a stamper working in Cornwall, as, with all that Cornish miners and engineers have done to perfect mining machinery they have been sadly conservative with regard to their stamps, rather increasing the number of heads than improving the individual stamp, and to the present time Cornwall is far behind our colonial and American mines in the effective work done by stamping machinery.

Taking a great interest in the development of stamping machinery, and being at present engaged in laying out plans for a mine, I hope to hear more of the Elephant Flexible Stamp. Until then I must stand by what has been proved the most effective stamp—the round stamper revolving at each lift, of about 900 lbs. weight, lifting from 80 to 85 times per minute, with a drop of 9 in. S. J. MOULTON.

Redhill, Aug. 29.

STAMPING MACHINERY.

SIR,—Kindly allow us in next week's Journal to inform "Old Correspondent" that a battery of Elephant Flexible Stamps is being erected in Plymouth, where on application to us it may be inspected in action. Printed reports of its work on tin ores may also be had. Owing to the cessation of work on the mine, where a stamp had been placed for the purpose of exhibiting this machine, another machine has been made, and will be fixed on our works, where at any time it may be tested in action. Your correspondent may well term its work, as reported, "an extraordinary achievement," and we are satisfied that a thorough investigation, which he suggests, will result in its being found that the Elephant Flexible Stamp deserves immediate adoption by all those who use stamps, whatever make or kind they may be, where power is costly or difficult to obtain. WILLOUGHBY BROTHERS.

Central Foundry and Engine Works, Plymouth, Aug. 28.

REDUCING METALLIC ORES.

SIR,—It is frequently remarked that in periods of depression attention is directed to the economising of the methods of preparing the raw material for market, whilst in times of prosperity those already in use are considered quite good enough; and that there is some truth in this seems probable from the number of new suggestions which are just now being made in connection with the reduction of metallic ores. To one of these I should like to take the opportunity of directing the attention of the readers of the *Mining Journal*—I allude to that of Mr. Schoenberger Blair, of Pittsburgh. It will be recollected that some five years since this gentleman took out an English patent for his invention, but like many other novelties it was found imperfect, and five years of thought and labour have since been bestowed upon it. The improved process is now considered applicable to the reduction of oxide ores of other metals besides those of iron. The apparatus which is employed consists of a vertical retort or reducing furnace combined with a gas producer and with circulating pipes for the gas fitted with suitable valves.

The producer used by preference is a brickwork chamber of some depth made with its upper part of smaller diameter than the lower, so that there is an overhanging shoulder projecting inwards all round the chamber, beneath which shoulder are provided apertures for access of air to support combustion, and also nozzles from the descending gas main which will be hereafter described. The air apertures as well as the gas nozzles may be provided with valves for regulating the currents through them. At the top of the producer is a feed tube projecting downwards some distance into the interior of the chamber, so that the fuel in descending through this tube becomes dried and heated by the hot gas surrouding it. The bottom of the chamber tapers to an exit aperture provided with a door or valve by which the ash can from time to time be discharged into a truck wheeled below the producer, which is mounted on columns so as to give free access below it for that purpose. Immediately under the roof of the chamber is the exit channel for the gas-producer therein, which channel communicates with the interior of the vertical retort or reducing furnace at a point just under an overhanging shoulder formed in the retort by constructing it of larger diameter below than it is above the said shoulder.

At the top of the retort is a feed hopper and tube projecting downwards by which the materials to be operated on are introduced, the feeding aperture being provided with a valve to prevent access of air. At the bottom of the retort is a moveable slide or platform containing vessels which can be successively brought under the discharging mouth of the retort, so as to receive a portion of its contents without exposing them to the air; or the bottom of the retort may be tapered like that of the producer to an exit orifice provided with a door or valve. From the top of the retort a pipe leads down to one side of the producer, where it is provided with branches and valves by which it can be made to communicate with either the inlet nozzles or the outlet channel. In the pipe leading from the top of the retort is arranged a fanner or other suitable apparatus for creating a current, and for this may be substituted a steam jet, in which case a water shower is arranged in the descending limb of the pipe to condense the steam.

The working of the apparatus is extremely simple. The retort is charged nearly to the top with the ore mingled with carbonaceous matter; the producer is kindled, and as soon as its action is established so that no free oxygen can pass from it into the retort its feed valve is closed, and the fan or other draught creating apparatus is put in action so as to send a current of the gas from the producer into the retort. The gas thus supplied finding an annular space under the overhanging shoulder of the retort can pass into and through the contents of the upper part of the retort, which it heats, becoming itself cooled. It then descends by the pipe, and may be conveyed away to be used for heating purposes elsewhere. When the heat thus delivered to the retort tends to become to great, a portion greater or less of the return gas is sent by the nozzle into the producer, and the air supply thereto is more or less checked, so that the combustion in the producer is retarded, and the production of gas transmitted through the contents of the retort; or the return gas may be be directed to a greater or less extent into the outlet passage of the producer so as to effect cooling without reduction of volume. By the passage of the hot gas through the materials in the upper part of the retort the ore becomes reduced as it descends, the reduction being completed at or near the overhanging shoulder, below which the contents of the retort consists of a mixture of spongy iron with carbonaceous matter and ash. This as it descends becomes somewhat cooled before it is withdrawn at the bottom mouth, and the cooling may be aided by providing the lower part of the retort with the water jacket. The reducing action in the retort may be accelerated by mixing with the ore and carbonaceous matter a proportion of lime or other alkaline material, but this is not essential to success; and although the circulation of the gas through the retort has been described as being from below upwards, it is obvious that it might be caused to flow in the opposite direction—that is to say, from above downwards. The invention would, no doubt, require slight modification in detail to adapt it to the various kinds of ore met with, but there can be no question that as compared with many processes at present in use it offers important advantages.—*Manchester, Aug.* 27. SYLVANIA.

SEPARATION OF MINERALS—THE DRUM DRESSER.

SIR,—In this age of invention and inventors, and each claiming for his machine especial advantage over every other, it is difficult to decide which to adopt except by very careful personal examination. Amongst other recent inventions is the Drum Dresser, patented by Mr. Taylor, of Chester. A few days ago I paid a visit to the Minera Mines, in Flintshire, where I saw this machine operating on the waste heaps with most marvellous results. As the inventor would be most happy to describe the machine to any of your readers who may wish it, I need not occupy your space in so doing. Whatever merits other machines may possess, it is scarcely possible that any machine working the same class stuff could separate the lead from the waste more perfectly. So poor was the stuff going in that lead was scarcely discernible, and that delivered at the furthermost end was almost free from waste, lead and blende being just the only substances to be found in the receiver, I am not aware that this machine has yet been tried on richer stuff, but it seems self-evident that it would do very much better, and I should not be surprised if it superseded anything yet brought before the public.

Vale of Conway Lead Mines, Llanrwst, Aug. 28. J. ROBERTS.

THE PROPOSED NATIONAL SOCIETY OF COLLIERY MANAGERS.

SIR,—I suppose the object of this society cannot at present be clearly defined, and until this is done many will hold back and not offer to join it. At the first blush my idea was that it was intended to be a benefit society—that was to be one of the main objects at all events—and I would advise the promoters to adhere to this point, and give it the greatest possible prominence. As to a national mining institute, that object I think is of secondary importance. Can such an institute succeed when we look at the great local institutes now established all over the country? Will the members of these institutions join the national one, and dissolve the present local societies? "Manager" in last week's Journal throws a very nice apple of discord into our midst in the most abrupt and unceremonious manner. According to his dictum the men holding certificates of service are ignorant and incompetent many of them, and they are to be kept out of this new society, or from taking any active part in it. He also proposes to educate those poor fellows by means of papers to be written by the august house of peers he wishes to establish. The idea, to my mind, is perfectly absurd, as those men have now the privilege of attending the local societies alluded to above. If all managers of mines are accepted as members, and, of course, on an equal footing, there is no reason why a strong society should not be formed, the pecuniary object to be the raising of a fund to support the members in old age, &c. Other matters could be considered and discussed after the formation of the society was completed.—*Newcastle, Aug.* 25. VIEWER.

SAFETY-LAMPS.

SIR,—It is well known that lamps intended for use in mines where the presence of explosive gases is suspected consist of two principal parts, the lower part forming the oil chamber and the upper part consisting of the glass through which the light is mostly emitted, the protecting wire gauze, and the means of combining and suspending the lamp; these two parts are screwed or fastened together by the lamp trimmer or examiner after the wick of the oil chamber is lighted, and before the lamp is delivered to the miner for use. The means of fastening the parts together hitherto tried have been numerous, but they have invariably been of a complicated nature, which augmented considerably the cost of the lamp. The object of all these endeavours to secure the parts of the lamps together has been to prevent the miner (or any unauthorised person) during his work or otherwise, while he may be surrounded by inflammable gases, obtaining access to the naked light (for any purpose whatever) within the protective surrounding gauze, and which might lead to an immediate disastrous explosion and loss of life. Many of these endeavours have failed in their object, others have been too costly in application, and consequently have not been carried into practice, and others have only been applicable to one particular kind of lamp.

With a view, therefore, of providing a simple, efficient, and inexpensive means of locking the parts of the lamps together, so as to prevent them being tampered with by anyone but the lamp trimmer or examiner, or authorised person, Mr. Richard Brown, of Tavistock, propoees a new arrangement. In applying the invention to existing safety-lamps, or in constructing new lamps, he makes no alteration in the upper part of the lamp, save that he drills or otherwise forms in the under side of its lowermost rim or screwed flange a hole, the use of which will be presently described. The oil chamber he casts or otherwise forms with a suitable recess or cavity in one side, in which a lock can be rivetted, or otherwise suitably secured, so as to prevent removal unless violence is used. The principal peculiarity of the lock consists in it having a long spindle of small diameter, the same being peculiarly formed at its innermost end to prevent any but a certain key getting in such a position as to be able to turn and open the lock. This key (of which he proposes having only one, to be kept by the lamp trimmer, examiner, or any other authorised person) is correspondingly made with a long barrel of a small diameter, and is formed at its end so as to correspond with the peculiar formation of the innermost end of the spindle of the lock. Before being used the lamp is first trimmed and lit by the trimmer, who then screws the parts together, and turns the key in the lock, the bolt of which then projects into the hole above mentioned in the under side of the upper part of the lamp, and prevents the twe parts being again unscrewed till the bolt is withdrawn by the peculiar key of the trimmer.

In applying the invention to existing lamps the only alterations necessary are the hole drilled in the upper part, and the re-casting or otherwise forming or altering the oil chamber, so as to admit of its carrying the lock in a protected position. The projecting boss of the lock is protected by a screwed cap or otherwise, so as to exclude all dust, and prevent its entering the lock. I am quite aware that there are many good safety-lamps of various constructions in use,

but few I think which can compete with this (which, moreover, is not patented, and can, therefore, be used by anyone) for simplicity and cheapness.—*Manchester, Aug.* 27. L. D. S.

MINING IN THE EAST—No. XIX.

CONTACT DEPOSITS OF THE BANAT.

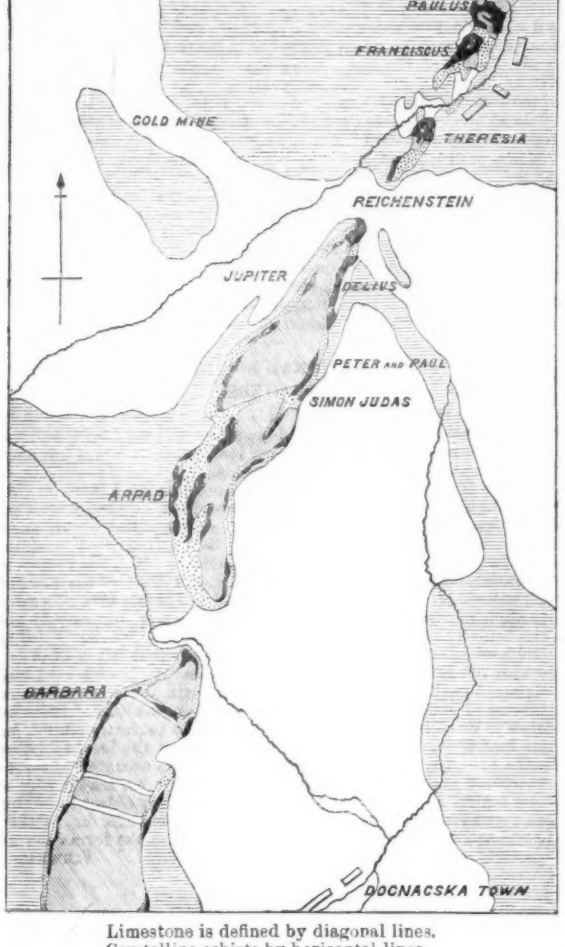
SIR,—The mining district of Dognacska-Moravicsa, in former times so productive, is separated naturally into three portions by the intrusion of the syenite, which has upheaved the central mass of the limestone to a great height; and, as this disruption defines some individuality between the fragments thus divided, it will facilitate description to discuss the deposits grouped around each of them distinctly, viz.:—

The Dognacska South Mines of lead, zinc, and iron;
The Dognacska Mines, producing silver, copper, lead, and iron;
The Eisentein Mines at Moravicsa.

The records of the numerous mines which were working during the last century are difficult to obtain. Von Born, to whose letters we are indebted for the greater portion of what is known concerning them, describes mines most of which have long since ceased to work, and whose very names have fallen into oblivion. It is, consequently, not easy to say what the importance of the district may have been; but it is everywhere stated that the mines were then at their zenith, and that the production of the various metals drawn from them was very large.

As it will be infeasible to arrive at a clear conception of the relative positions of the formations, with the intercalated contact rocks and mineral deposits, from a written description alone, an accurate geological sketch, at a scale of 700 fms. to the inch, has been prepared from the plans in the drawing-office of the States Railway Company, revised by Herr Huss, the company's mining engineer.

MINING DISTRICT OF DOGNACSKA-MORAVICSA.



Limestone is defined by diagonal lines.
Crystalline schists by horizontal lines.
Glangart or gangue by fine dots.
Deposits of mineral black.
Syenite, white.

SOUTH MINES.—These deposits lie around the edges of the limerock, which rests on the western border of the syenite, and have been much less mined than those of the other groups. The mass has been much split up by dykes analogous to elvan courses, which extend quite across to the schists on the west, and, although no syenite has been observed on the western side, there can be no doubt but that the mass of the limestone rests for a considerable space upon it. The Gangart, swelling around the point of the mass, extends along both planks of the metamorphosed limestone in thick beds for a considerable distance into a mica-schist. Near the syenite the gangue is principally made up of grossular; but, as the schists are approached it gradually becomes more hornblendic, until it is composed almost entirely of actinolite and tremolite, in large fibrous masses, generally white in colour.

The ores are not only found in the gangue between the syenite and limerock, but also at the junction of the latter with the schists, and sometimes in the crevasses through which has poured the molten rock. The ores that have been extracted are those of copper and lead, associated with blende; the iron ores containing too low a percentage to be of value. Thus, though numerous surface deposits of hematite, magnetite, and clay-iron ores have been opened along the confines of the lime-rock they have not been worked to any notable extent. The deposits are found in long flattened lentiles, and are both in strike and dip entirely dependent on the limestone. They are analogous to the similar deposits of the Moravicsa mines, but are much smaller, seldom exceeding 10 ft. in width, and being intermingled with much gangue are too poor to bear the costs of transport and reduction. The principal mines enclosed in the eastern fringe of gangue are Maximillian, Cyprianus, Mars, and Elisabetha, all producing hematite; Hildegrade, with its manganiferous clay-iron ores, and Aurora. On the western side, Gisela contains clayey hematite, and in a large cleft filled with gangue and syenite the important deposit of Elias Eliseus has been mined for magnetic iron ore. A special description of these mines is needless, because those of the north (to be described later) are analogous both in composition and manner of deposition, and are besides so rich in quality and so abundant that a long period must elapse before the less valuable iron ores of the south mines will be required.

METALLIC MINES.—The metals most sought have been lead, zinc, and copper, and of these the first named has been produced in the greatest quantity. The ores constantly present themselves either on the junction or its immediate neighbourhood in amorphous forms, pipes, nests, vughs, &c., of ever-varying dimensions, and occasionally a number of these are connected by strings and joints exhibiting a perfect network of mineral. These columns and masses seldom exceed a length of 10 fms. or a width of 5 fms., but sometimes reach a depth of 40 fms. Whatever dip they may have is due to the contour of the rocks at the junction. The only mines which have been worked latterly are those of Antonio, Elias Eliseus, Barbara, and Nicolas.

ANTONIO.—This mine was worked to a depth of 20 fms. under the deep adit; but was suspended in 1854, in consequence of the difficulty and expense of drawing the water by a break-pump requiring 20 men to keep it continually in motion. The ore extracted was principally galena, which was associated with some blende and copper pyrites. The "pipe" of ore—which was deposited next the limestone—had a section of about 8 square fathoms, and this section varied but little from "grass" to the "bottom," though the ore was found more dispersed in the gangue as depth was gained.

BARBARA.—These deposits are the most important in the district, have been in operation for many years, and are giving profitable results. They have been worked on both sides of a large dyke of syenite, which completely isolates a large triangular fragment from the main body of the limerock. The mines are situate at the western extremity of this elvan course (as it would be named in Cornwall), and communicate with the Ferdinand Erbstollen, which serves to drain the mines and to transport the ores. The ores are discovered next the limestone or on the hanging-wall of the gangue, which dips 40° to the south-east, in numberless kidney-shaped nests of all sizes, disposed both in strike and dip in the most fortuitous manner. The deposits continue much the same in extent and value to 10 fms. below the deep adit, and probably much farther. The ores extracted are blende, galena, and sulphurets of copper. Immediately on the limestone some oxides of these metals are found, but not in quantity. The aggregate horizontal section of all the deposists is said to average not less than 25 superficial fathoms. At the bottom of the mine it has somewhat contracted, but the ores during the last two years have been more valuable. The ores are much disseminated in the gangue, but are carefully separated at the mouth of the deep adit into two piles—"best" ores and "stamps" ores. The first is dressed up into three piles, viz.:—1, oxidised lead ores worth 20 per cent. for lead, containing 10 ozs. of silver to the ton; 2, galena, with 34 per cent. of lead and 16 ozs. of silver; and, 3, cupreous pyrites, containing 1 per cent. only of copper, but 18 ozs. of silver to the ton. The ores set aside for stamping are worth about 8 per cent. for lead, with a proportionate amount of silver. These have accumulated until a reserve of many thousands of tons await the manipulations necessary to render them fit for the smelter. They will be concentrated at the new works, which will be put into operation shortly, and the ores handed over to the smelting-works in the town of Dognacska.

NICOLAS.—This is an extensive deposit, containing copper pyrites and their oxidised derivatives. There are many other mines of copper and lead opened along the western plank of the limestone; but they are not of great importance, and require no special mention. The disinclination of the domain authorities to embark capital in the further exploration of metallic mines does not permit of an extended working of these promising mines, notwithstanding that they could be easily opened to a great depth by the extension under them of the Ferdinand deep adit, which would unwater them, and deliver all the ores on to the same "floors."

DOGNACSKA GROUP.—The mines of this district have been opened along the flanks of an immense lentile of metamorphosed limestone, which by upheaval has obtained a much greater elevation than the surrounding country. This mass extends along the summit two miles, with a fluctuating width of from 300 to 600 yards, and is embedded in syenite, into which it penetrates about 150 fathoms. Resting on the axis of the line of upheaval, and there exposed to intense plutonic action during consolidation, no mass of limestone in the whole of the Banat has remained under such favourable conditions for the development of minerals: consequently, it is not only surrounded by abundant deposits of various metals, but the fractures and vast erosions in its mass have been everywhere filled with rich ores, which have been worked both in ancient and modern times with profitable results. The syenite, whose upward thrust has divided the limestone into two principal fragments, has so corroded it that the contour is most irregular; but the hollows and rugosities are all penetrated and concealed by enormous masses of the so-called gangart, which on all sides separate it from the eruptive rock and crystalline schists, and preclude any immediate contact between them and the limestone. These gangues, which enclose all the ores, whether of iron, copper, lead, or zinc, are usually of moderate thickness; but they attain a remarkable importance on the western fringe of the south fragment, where they exceed 100 fms. in width, inclusive of the interbedded compact garnet rock. The schists, which the plan shows to accompany the junctions, are rarely of any thickness, and they have become gneissose by the influence of the syenite on which they repose. During the latter half of the eighteenth century numerous mines were worked—of which Von Born gives a long list. Very few of these continue in operation; but many iron mines have been opened to supply the two blast-furnaces at Dognacska, from which excellent iron ores are obtained by quarrying, the best ore being near the surface, where the original pyrites has been thoroughly oxidised.

IRON MINES.—On the eastern flank of the saccharoid lentile of limerock, commencing from the south angle, the principal iron mines are Jupiter, Mariahilf, Blazius, Peter and Paul, Elias-Enoch, Delius, Carolus, and Reichenstein, the latter occupying the angle of the limerock north. These superficial deposits of hematite and magnetite present no peculiar features; the farther they are removed from the surface the poorer they become in oxide and the richer in sulphide, until a point is reached when they can no longer be utilised for the production of pig-iron. The mine from which the iron ores have been principally obtained is called Peter and Paul, where a large lode, 2 fms. wide, has been worked to a depth of 50 fms. before the impregnation of mundic rendered it worthless.

On the western flank there are also several mines worked for iron of a similar character—such are Rudolph, Lobkovitz, Arpad, and Juliana. The two last named are very valuable, and are situated on the south-west border of the limerock, where the gangue has attained its greatest development. Arpad has been formed on the footwall next the mica-schist, while Juliana, nearly *vis à-vis*, occupies the hanging-wall next the Ralk. The deposit at Arpad has a vein-like form, and is only about 2 ft. thick, but is very long. The hematite ores extracted contain at least 5 per cent. of manganese, and a small percentage of lead. It is worked like a quarry, and is only 6 fms. deep. Juliana is opened on a thick lentile of very pure magnetite, 5 fms. thick, but is somewhat difficult to reduce.

Maidanpek, July 29. EMPRESSARIO.

RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—Now that the decision is announced, with a result which was a foregone conclusion to everyone who knew anything of the mining interest of Nevada, it seems that what was to have been sauce for the Eureka goose is not to be sauce for the Richmond gander. Before the decision was given we find Mr. Probert saying—"We have been careful to select such experts so that our opponents, in case of defeat, will not have any chance of appeal." But now that the defeat is on the Richmond side, with a querulous wail as to "decision against law and facts," he says. "We hold possession during prosecution of appeal." Before the shareholders consent to throwing away more money on a lawsuit, which I am given to understand might have been amicably settled long ago had it not been for British obstinacy, it may be well that they should know what to expect. In the early days of the history of the Comstock, the same battle was fought over and over again of one *v.* many lodes, and always in favour of the one-lode theory—a theory which has been absolutely verified by subsequent developments. I am aware that no parallel can be drawn between the mines on Ruby Hill (the one-lode theory represented by the Eureka, and many by the Richmond) and the Comstock, the formations being totally dissimilar, but the fact, nevertheless, stands that the judges, lawyers, and the mining population generally of the Pacific Coast are so wedded to a one-lode theory that it must be a hard task indeed for any company, especially an English one, to break down the bulwarks of a theory cemented by blood in many an actual fight, and clearly established by the bottom workings of the Comstock. I am induced to raise this word of warning as it may not yet be too late for the compromise of a suit which, unless things have strangely altered since I lived on the Pacific Coast, cannot cost less than 20,000*l.* already. Let the shareholders look to it if they wish to save any portion of their property.

London, Aug. 28. ANGLO-CALIFORN

RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—The recent decision of the American lawsuit adverse to the company only affords one more instance of the folly of the British public in entrusting their capital to the tender mercies of Brother Jonathan. The paramount design of the American judges seems to be to favour their own countrymen, and to refuse justice to all others. The Emma, Flagstaff, and many other companies are instances in point.

A LOOKER-

THE NEW QUEBRADA COMPANY.

SIR,—Can any of your readers give me some information as to the position of the New Quebrada Company? I was induced to buy some shares about 12 months ago on the representation that the railway to the mines would very soon be finished, and on that being done such enormous returns of copper would be sent from the mines that the shares then selling at 4*l.* would rise to 12*l.* or 15*l.* Some two months ago we had an official report that the line was then practically but finished, accompanied by a very lengthy description of the enormous resources of the mine by some mining expert they had sent out, when, to my extreme surprise, in a couple of days the shares fell from 4*l.* to less than 2*l.*, and so continue. I have made numerous enquiries as to this cause, and can learn nothing, either at the company's office or outside. If any reader can give me some explanation of the cause of the fall in the price of shares, or give me any information as to the position of the company, as the directors volunteer nothing—perhaps they know nothing—they will do.

London, Aug. 24. A SUBSCRI-

LEHIGH AND WILKES BARRE COAL COMPANY.

SIR,—As there are doubtless many who have an interest in the unfortunate concern besides myself who would like to see a statement of its affairs published, if only to deter other English capitalists from wasting their money upon investments in the United States, however promising they may appear on paper, to give them the benefit officially connected an opportunity of explaining statements detrimental to the company which have been industriously circulated. Here is a concern upon which not much less than 5,000,000*l.* sterling has been expended not only now reported to be penniless, but actually burdened with liabilities to the extent of more than 4,000,000*l.* Against this there are of course some assets yet, after realising everything to realise the very liberal price put upon them there will still be a net deficit of 400,000*l.*, and it is estimated that immediate closing of the affairs, assuming a purchaser could be found, would involve a further loss (for all the capital subscribed has, it is said, long since been expended and forgotten) of 200,000*l.* at least. Coal lands held in fee appear among the assets, and these tend to create a favourable impression, but upon investigation it is found that these are reported so heavily mortgaged that their actual value is really *nil*, whilst the leasehold property is in no better position since suites are now pending to forfeit some of the leases on which much money has been expended for improvements, and rents hereafter to be deducted from royalties. These deductions amount to 160,000*l.*, being equivalent to 5 per cent. per annum on 3,200,000*l.*, yet if the leased lands be abandoned or surrendered the leases forfeited through failure to pay the rental, all previous payments upon this account, as well as the outlay made upon improvement will go with it. Even to pay the preferred claims of 88,000*l.* the receivers have had to borrow 60,000*l.* by order of Court, and on 6 per cent. debentures with same lien as claimed by and they state that they took over but 160,000*l.* available assets against 1,256 520*l.* of debts. The present value of the company's coal lands is estimated at 2,000,000*l.*; but as against this there appears the 4,000,000*l.* liabilities, and permanent rental liability of 160,000*l.* per annum on the leaseholds abandonment would seem to be the most profitable operation. The total estimated value of lands and improvements is under 3,000,000*l.*, upon which the consolidated bonds would have a first charge of 2,250,000*l.*, leaving a margin of only 750,000*l.* to meet 1,250,000*l.* of floating debt, and an abundance of other liabilities. Clearly someone concerned ought to furnish explanation and formation to allay the fears which the circulation of such particulars as above are calculated to create among British shareholders in an American company. Surely no complaint ought to be made of this of the risks attending home mining. The expenditure of 9,000,000*l.* in Cornish mines would put them all in profitable condition.—*New York, Aug.* 16. BAR-

LEAD MINING IN THE HIGH PEAK OF DERBYSHI-

SIR,—The valuable mineral sett purchased some years ago by Horatio Bradwell, of Sheffield, and his late brother, Mr. Edwin Bradwell, and situate at Bradwell, a very large mining village in the centre of this large mineral field in the High Peak of Derbyshire, is fair to be very speedily opened up on a large scale by a party of venturers from Sheffield and Birmingham, to whom Mr. Bra has ceded the sett on the most liberal terms; and under the energetic management of this gentleman himself, who takes a large interest with them, the operations are being pushed along night and day with his wonted energy. Although operations have been recently begun a new road some 400 yards to the site of the new is made, pit-head gear erected 33 ft. high, winding machinery, crete, limestone, and ashlar foundations for machinery, and of 20-horse power and building thereon; and the shaft sunk 12 ft. 6 in. by 8 ft. 6 in. inside the timber. A full staff of men at work in three shifts, and 10 ft. was attained in last week's ing. The lime formation is expected to be reached at a depth 21 fms. to 26 fms. from grass. It is intended for the present in the lime a further 20 fms. to 25 fms., making a total of 50 then at once to cross-cut the lode in purely virgin ground, one of the largest mines in the district is expected to be open

It will no doubt be interesting to give your readers some account of this large and powerful ore-yielding lode. It, or they, being six in number, are called the Moss Rake, and run parallel with each other, and sometimes forming a junction running into one. When such has been the case the yield of lead ore has been very great. These lodes have been worked for some hundred years from Bradwell in a westerly direction for about six miles to Peak Forest village by some 25 to 30 ancient mines, and the for the entire distance has cropped up to grass in silican or mountain limestone, and has been worked and yielded up to the very face. Crossing the village east rises a mountain, called Bradwell. This mountain overlays the lime with shale, then grit; and under shale it is intended to open and work this property, which is to be by a new shaft and machinery. The mountain rises from the of the village up to the site of the shaft, a distance of 225 yards, say, 15 yards, or 1 in 15—and the lime formation dips in the direction at the rate of 1 in 6—say, 37½ yards. It is, therefore fairly expected that in sinking this shaft the lime will be reached at about 25 fms. The history and experience of all our Derbyshire lodes is that whenever these lodes are capped with shale, either or west, then in such cases the yield of ore is tenfold the usual. When they come up to grass without a shale cap or cover—there is no romance whatever to expect great riches here—further to say that the mighty lode can be seen distinctly just at its entry to this shale cover, and measures 39 ft. thick, and at this point is the crossing of a rich "pipe" or flat work of ore, which at 18 fms. and 26 fms. from the surface; and where a pipe of a powerful lode the deposit of ore is beyond computation. There are many natural advantages in favour of this work—nearness to rails, carting 6s. per ton; cost of good large slack (21 cwts. good roads, a large mining population on the spot, and close mity of smelting and white-lead works. One of the cupola longs to the Bradwell, and can be taken by this company, in that they may smelt their own and other ore; the high assay the ore and its entire freedom from blende or foreign matter great ease with which it can be treated in dressing, and its suitability for the manufacture of white lead, for which

…ore-lead realises nearly 20s. per ton more than other kinds. I …ld be pleased to give you further information as the work pro-
A VOICE FROM THE HIGH PEAK.

MINES AND MINING IN THE LAKE DISTRICT.

SIR,—I thank you for the review of my pamphlet on Mines and …ning in the Lake District, which appeared in the Journal of the …st; but there is a grave error in it, to which I beg leave to …r your attention. It is stated that "the historical and descrip- accounts of Goldscope, Yewsthwaite, Brandley, &c., mines, in latter part of Mr. Nicholson's admirable essay, will prove that Skiddaw slates contain large and very valuable deposits of lead, per, and iron ores." Whereas it is my essay that contains the nts of the mines named, Dr. Nicholson's being entirely con- to the geology of the Lake district. If the reader refers to erview he will see that what is erroneously attributed to Dr. lson is a flat contradiction of the quotation from his work im- ately preceding it.
J. POSTLETHWAITE.

Keswick, Aug. 24.

MINING IN CALSTOCK DISTRICT.

SIR,—Everyone who is possessed of a good nature must feel a …isfaction at the success attending Dr. Emmens's works at Wheal …on, Holmbush, &c. I am glad at the success of every honour- …an, and I hope that success will continue to crown all his …s. I am about to visit the district, and purpose sending to …r report on Newton and Holmbush.
R. S.

…ept. 30.

COMMERCE, TRADE, AND ENTERPRISE.

SIR,—The same stagnation of business, suspension of labour, …king of values continue throughout all departments of our …industries. Our manufactures and our products, both from …ll at surface and from mining in the depths of the earth, ex- the like contraction of values when offered in the general …of the world. Bankers, discount-houses, and money-lenders …ike a peculiar class, and are the bane of commerce, trade, in- …y, and productive enterprise—they extend and stick their …every where and in everything possessing spring and vitality …ther merchants nor manufacturers, nor the railroads, nor the …alers, miners, mechanics and labourers are exempt from …money-lending Shylocks. They are sharks that possess mort- …on every description of property. Our manufacture and pro- …are now suffering from inflation which prevailed during the …ative administration—when the ex-Premier so exultingly ex- …ed in the House of Commons that our prosperity was proceed- …with "strides and leaps," he forgot the day of reckoning, and …overlooked that this inflation was promoted and fostered …the colossal money-lenders, and our varied financial agencies, …these pockets the gains gravitated to the exclusion of profits …producer. These gigantic pawnbrokers have swallowed up …remodicum of capital our honest merchants, tradesmen, manu- …ers, and producers possessed, thence money has passed into the …of the few and favoured class who extract all the usury they …from those who ought to reap the reward of their industry, and …there is no more to be exacted they hypothecate the securi- …and the lower the prices the more gains they acquire through …ansaction. These vipers permeate throughout all grades and …dustries, and they create nothing or add anything to the actual …th of the country; but, on the contrary, these usurers have …ed the land as "locust and lice" did Egypt in the times of …oh.

…m a paper read by Stephen Bourne before the Manchester …tistical Society it appears that in 1857, just twenty years back, …the first also of the powerful era which followed on the ter- …ation of the Crimean War, the total value of the foreign and …al goods retained for consumption in this country amounted …4,000,000*l.*, of which 64,000,000*l.* was for articles of food, …,000*l.* for raw materials and manufactures, and 18,000,000*l.* …manufactured goods. In 1876 the gross amount had expanded …,000,000*l.*, of which 159,000,000*l.* was for food, 109,000,000*l.* …w materials, 41,000,000*l.* for manufactured goods; 39 per cent. …whole in 1856 and 50 per cent. last year went for food. The …ation during the 20 years has increased from 28¼ to 32¾ …ns. The food furnished from abroad had advanced from …,000*l.* to 159,000,000*l.* sterling. This means that on an average …last three years each member of the community consumes to …ue of 150 per cent. more foreign food than in the year 1856, just …ars ago. If this be the effects of simple free trade, then surely …ture in this country ought to suffer in consequence; but such …idedly not the case, for beef, mutton, pork, poultry, serials, …ables, hay, straw, and all eatables and requirements of the …, and produced in this country, have materially advanced in …ty, quantity, and price, and the combined value of the pro- …of the soil have greatly augmented. What, then, is the cause …se rapid and astounding changes? Our answer is simple and …e point—the sudden and wide-spread social amelioration and …ased intelligence of the working and middle classes of the …unity, through the introduction of cheap postage, newspapers, …literature. Railways, telegraphs, and lessened taxes on the …ce of food and the necessaries of life—the steady growth of …anufacture and of our mining—coal, iron, lead, and blende; …onstitute the nucleus, from whence spring the vital support …railways, vessels, and all sources of locomotion, and the com- …and trade of the country; yet let us ask why is the trade …produce of this country prostrate and dormant in the face of …ance of cheap money, and apparently when the requirements …world from war and other disturbing elements should greatly …ase the demand for our manufactures, metals, and minerals; …are the staple sources of our advanced prosperity, and the …pplings, with agriculture, of our material wealth and high …ding among the civilised nations of the world.

…annot be assumed for a moment that the manufacturer, me- …ic, miner, or workman is worse off than formerly, for his wages …gher, the necessaries of the table free from taxes, and clothing …per than 20 years ago. The causes, therefore, lie deeper and …ng from other elements than free trade, and there can be no …t that the contentions between capital and labour—strikes and …outs—have caused the collapse in the manufacture, products, …dustrial enterprises not only of England, but also of America, …ia, France, Germany, Belgium, and the chief countries and …s of the world. England must be true to her own interests, …ertain the growth of her own wealth at home. We have got …ing by lending money to the foreigner, nor shall we ever gain …ning in the most favourable instances beyond the bare repay- …of capital and interest, not one iota arises from the employ- …of the money advanced to our working class. The foreigners …es the properties created, the revenues and their workpeople …and fructify at our expense, while at home our industries lan- …for that support which we extend to aliens. Foreign loans …inances of the past, excepting, of course, India, Australia, the …, New Zealand, and our other colonies which bear the stamp …character of our Imperial Legislation and example. Specula- …in Egyptian, Italian, Spanish and Russian securities, rather …holders of them, are interested in upholding their values, and …mmend investment therein, for no one now-a-day deals in those …modities excepting gamblers, lunatics, and a certain powerful …k Exchange party, which, in an hour of rash adventure became …d with these all but worthless papers, and cannot now unload …on an awakened public. It is, therefore, to our home invest- …nts that capital should now be directed; we have banks, in- …ance, railways, canals, water, gas, and mines that pay from 5 up …0, 20, 30, 40, 50, and even 100 per cent. on capital embarked, as …exemplify the London and Westminster, Union, National Provin- …of England; the Rock, London and County, Royal, Law, and …er insurance companies, numerous railways, with the New River, …t London, Southwark and Vauxhall Water Companies, and the …ast Lizzy, Van, Eliza, Roman Gravels, Devon Great Consols, …rgovnion, Tankerville, West Chiverton, Leadhills and other pro- …ble mines, with many more possessing the true elements of pro- …sive growth and early promise of substantial profits to persever- ing capitalists; as, for example, Hultafall, Cambrian, Pateley Bridge, West Pateley Bridge, West Craven Moor, East Chiverton, Ladywell, Cwm Llanarch, Talybont, Llanrwst, Clementina, D'Eresby Mountain, Monydd Gorddu, Dyliffe, West Seton, and Treloweth.

R. TREDINNICK,
Consulting and Advising Mining Engineer.

Exchange, 66, Coleman-street, London, E.C., Aug. 20.

CARDIGANSHIRE MINES, AND ITS PANICS.

SIR,—During the past few years a good many mines in this district have been abandoned, which might have now been working in a flourishing condition had the affairs of the different companies been properly and legitimately conducted, but I do not mean to dwell on that subject at present, merely informing the mining investor of an instance or two of what I have seen down here during the past 30 years. A good many men besides myself have seen a course of lead ore in the old Esgair-hir Mine, 5 ft. wide, and solid, which in my estimation was fully worth 280*l.* per fathom. The company sent down a manager from London who was inexperienced in mining, and would not be guided by his agents. An enormous amount of money was expended on useless materials, machinery, and surface work, until the mine was brought into poverty and the shareholders into difficulties, consequently the old mine had been condemned for that conduct, and recorded as a failure. Another mine in the same district on a capital of 7*l.* had returned 32*l.* per share in dividends, and that was done above the 30 fm. level. The manager scraped out all the ore available above that level, and the mine was abandoned without a single effort being made to open out the ore ground in deeper levels. I have seen 200 tons of lead ore per month dressed in this mine, and no doubt, if properly managed, the mine would have continued to yield profit for many years to come. Now it is lying idle, waiting a revival in mining, with all its machinery ready for action. Here is a rare chance for investors to lay out their money with certain success.

These two instances, added to the cases publicly known to your readers, might suffice to account for the failures of most of the Cardiganshire mines. If parties would join and subscribe capital to invest in these abandoned mines, as was done lately in the Cambrian Company, and wisely select a person possessing a small quantity of what Mr. Tredinnick calls "perseverance," and induce him to display the same for the benefit of his employers, I am sure they would be handsomely rewarded, and they would have no need to fear a failure, as there is more mineral wealth to be discovered in the bosom of the Cardiganshire rocks than ever hitherto taken away. In fact, mining in this county is merely in its infancy, but if we are to wait until local companies are formed to develope its contents, it will be a long time before any benefit can be derived from its wealth. As to the discovery made at the Cambrian Mines, it must be declared a magnificent one, and I believe, from all I have seen and heard from the workpeople, that the value of the lode is more than reported, taking into account the high price of this copper. I am confident that with perseverance a good many more important discoveries will shortly be made within this extensive sett.

Aberystwith, Aug. 29.
VAUGHAN.

MINING IN CARDIGANSHIRE.

SIR,—The letter from "An Englishman" in last week's *Mining Journal* confirms the impression made upon myself during a recent visit paid to Cardiganshire, and there can be no doubt that many good lead mines are waiting for the returning confidence of the investing public. About seven miles east of Aberystwith lies a mine with its abundant machinery now silent and dumb, managers' and other houses, smiths' and carpenters' shops, &c., with all necessary tools ready and waiting for the hands to use them—in fact, talents buried; whilst in close proximity, and worked on the same lode, you can see activity and life, each moving wheel adding to the happiness and prosperity of the general community.

We read of money waiting in the market for an outlet, or at best returning only a meagre percentage, whilst many sound properties are crying out for a few thousand pounds to return many; amongst these is the mine I name, which returned during the last company's operations upwards of 70 000*l.* worth of silver-lead ore, and an outlay can be seen of at least 60 000*l.* The mines in close proximity actually yielded some 60,000*l.* profit for an outlay of 500*l.* The workings of this mine are now many fathoms deeper than the aforesaid, and returning ore from the same lode rich in silver.

The interested parties do not ask for any promotion money, but agree to rank equally with the public. I have personally assured myself that the parties who have been asked to come forward to re-work the property will not be called upon to pay one penny towards any expenses further than the pure mine costs; and as it is purposed to form a reserve fund, there is no doubt the shares will attain value. Captain Nicholas Bray, who is well known on the Stock Exchange and elsewhere for his integrity and great mining experience, is the manager; and in conclusion, at the end of his opinion on the mine, he states that he will "be pleased to take shares in this legitimate undertaking," and I am glad to say he has already done so.—*Mincing-lane, Aug. 30.*
C. C. MARVIN.

WEST TRESAVEAN (LIMITED).

SIR,—Tin mining in Cornwall is not likely soon to become "a thing of the past," although the interest is at present under depression. Wheal Eliza (near St. Austell), Dolcoath, Tincroft, and a few other mines, can show a profit with tin at 40*l.* per ton; and West Tresavean, in Gwennap, where works are now carried on on a small scale, is about to be worked in a spirited manner, under the management of a very experienced agent. The tinstone now being raised from the adit, which is 40 fms. deep, is of a very rich quality. A gentleman who came some hundreds of miles to see it, and who is about to take a large interest in it, said that the mine is worth more than 40,000*l.* This is an expression of great confidence on the part of an investor, with tin at such a figure; but that confidence was excited by the rocks of high-quality tinstuff which were being brought up from the mine while he was present. Hitherto the operations have been limited because a company was not fully formed; but I understand that the shares are now all appropriated, and that the works will be prosecuted with vigour almost immediately. There is a stamping-engine on the spot, which, I suppose, will be set in motion shortly for the reduction of the heap of tinstone now lying by the side of the whim-shaft. The effectual working of this mine will give employment to a large number of persons, which will be a boon to the mining families resident in that locality.—*Truro, Aug. 29.*
R. SYMONS.

P.S.—In my way to Truro from Camborne to-day, a mine broker said that tin will be 50*l.* per ton within six months. Of course, it is only his opinion. Mine shares are now, I think, at their minimum. Good time to purchase.

EAST WHEAL ELLEN.

SIR,—You have I doubt not heard of a copper mine in St. Agnes parish called Great Wheal Charlotte, which furnished considerable profits to the company, whose works ceased about 40 years ago; also of the Great Towan Mine, close by Great Charlotte, which enriched several gentlemen about 70 or 80 years ago; also of Wheal Ellen, out of which from a pit called the "Navvy" the late Capt. John Oates, of Rossinvale, derived about 10,000*l.* profit; also of South Towan and Twyarnhaile, which yielded immense quantities of copper ore. East Ellen is situate in the locality of all these mines, and is about to be re-worked. The work done in it herefore consists of the drift of an adit about 50 fathoms in depth, and of several shafts, one of which, with a little enlargement, will do for the engine of 50-inch cylinder which it is proposed to erect. The late company resolved at their last meeting to erect such an engine, but the bankruptcy of the principal shareholders terminated the works. At and above the adit several parcels of copper ore were raised and sold for about 1000*l.* In the bottom of the adit the lode is described as being worth from 15*l.* to 20*l.* per fathom for 20 or 30 fathoms in length, but the ore cannot be extracted before an engine has been erected, the water being plentiful. Capt. William Annear, of St. Day, who was agent here, states that there are four copper lodes and an elvan course passing through the sett; there is also a cross-course. Capt. R. Pryor confims Capt. Annear's good opinion on the lodes. They say that with so much ore in sight and prospect the work can scarcely be called a speculation, and that from 6000*l.* to 8000*l.* would be sufficient nominal capital, and that it is not probable that it would be necessary to "call up" so much. It is encouraging to see that several promising mines in Cornwall are to be re-worked.—*Aug. 29.*
R. SYMONS.

PHŒNIX LEAD MINE.

SIR,—There are numerous mines in Cornwall which should be re-worked, because they hold out prospects of payable produce. This mine is one of that number, and which, I am glad to hear, is likely to be revived at an early date, arrangements being in progress for that purpose. It was very suddenly suspended two or three years ago, for reasons which I need not detail. The machinery is all in order for a fresh start. The pumping-engine is a 42-in., in first-rate condition, with a 12-ton boiler; pitwork in its place; also capstan, whim, &c., all in good repair. The engine-shaft and ladder-shaft near, are respectively 68 fms. deep. In the bottom of the engine-shaft, which is sunk on the lode from surface, there is a course of lead ore of good quality, which will yield 2 tons per fm. The lode has been cut at several points, and lead found everywhere. The gossan is splendid; it held down to about the 60 fm. level. The lode has an easterly underlie, its strike being northerly. There is another lode near Penhale farmhouse having an easterly strike, and there are three elvan courses parallel therewith, and one cross-course. The miners consulted by me expressed a very high opinion of the mine. It is in the Penhale estate, in the parish of Perranzabuloe, Cornwall, the land of Messrs. Hoblyn, bounded on the west by Penhale Mine (which is also, I hear, to be re-worked), and on the north-west by Wheal Golding, both of which have yielded large quantities of lead ore. It has been said that when Penhale was struck idle the men could raise 40 tons of lead ore per month! The erections are among the sandhills, where conies are abundant, and which can be purchased for 9d. each; so that you can have rabbit pies without limitation. A branch of the Cornwall Minerals Railway is within about 400 fms. of the mine, thereby rendering the transit of the supplies and produce to and from the mine considerably less expensive than when the mine was suspended.
R. SYMONS.

Truro, Aug. 29.

TRELEIGH WOOD.

SIR,—I hear there has been a change of management in the above mine, and being interested, I should like to know why the change was made. I heard that just previous to the late manager leaving they had an improvement for tin in one or two of the bargains; therefore, the returns ought to show a good increase. It is rumoured that the manager was discharged without any cause. Let it be clearly understood, Mr. Editor, that matters of this kind are not trifling, and should be inquired into. It occurs to me that Mr. Smith, the largest shareholder, cannot be acquainted with facts, as I know that gentleman would not uphold anything wrong. I hope someone will riddle the question, and show who is at the bottom of all this.
SHAREHOLDER.

NEW CONSOLS.

SIR,—If the creditors of this company had the spirit of a man—such as a man should have—they would place the company's affairs in Chancery, by doing which they would probably secure the payment of their claims in full, and expose at the same time what appears to be very like a swindle. One of your correspondents lately said in effect, "Why talk about Chancery now that the company's affairs are under the supervision of the Vice-Warden?" I will tell you why. The persons who are connected with the winding up are said to have an interest in concealing the awkward facts which are believed to be attached to this concern; and, therefore, an investigation into all the circumstances is not now likely to take place, whereas in Chancery all would come before the public view. The poor labourers are not yet paid in full, which is a great hardship on them, who ought to have been paid long ago.
A MINER.

Callington, Aug. 28.

THE WILD DUCK, OR SPORTSMAN'S ARMS.

"Well, comrades," said Old Tom, "I'll tell 'ee what I've been thinken upon, or some of it, since our last mitten, and tes like this here. There were some time ago a lot of young miners growing up together, and worked in the different bals all about here. Some had good speed and some had bad speed, and by all accounts one knowed so much as the other, and by chance and good luck ten of them got in capn's, and made very good underground capn's; and tes said they had a hundred a-year each. Well, and what do 'ee think of another young fellow who got in cap'n at the same time, and didn't know one bit more than the other ten? But after a time a went ahead like a shot, and some say his salary is so much as the other ten cap'ns put together. So av coose he ought to know so much than the other ten. But I don't believe a do, or a bit more than ere a one of them. Nor do I belive that one man can be a first-rate pitman, timberman, shaftman, tutworkman, tributer, engineer, and judge of smithwork, dresser of all minerals, dialler, accountant, assayer, &c. I say, men, it will take ten stiff and experienced cap'ns to be able to practice and know all these things; and that none but bussah-heads would pay one man for doing ten men's work. I never heer'd tell of a man being in two places at one time, but no man can manage ten mines with justice unless he can do this. I tell 'ee, sose, no man can tell another the way to do a thing he don't know hisself; and another thing, most of our miners had their experience in copper mines, but put one of them in a cap'n, why, lor bless 'ee men, he'll know tin in the stone or out ov'n the stone in a minnit, and will go down and tell what an old candley end is worth a fathom when the men worken in un sometimes caa'nt see a blink of tin, but how it es that the capt'n can know so much more than a miner when he was a miner hisself a few days ago es something I caa'nt find out, and how a manager can know so much more than a underground capt'n es another thing I caa'nt find out, and how adventurers are such fools to make one man manager of ten mines is another thing I caa'nt find out, except tes 'one fool makes many.'"

"Why, Old Tom," says Jan Temby, "that's the longest speech thee'st ever made, and surely there's a good deal of truth in un. But how's the machinery and dry dressing getting on Old Tom?"

"I tell ee, Jan," says Old Tom, "a poor man has no chance of doing anything so long as two or three men got the management of all the bals in the country, but a time will come, Jan, when I'll stop the tin going down the Red River; but the big conceited capn dressers don't want nobody to interfere, as it would cut down their consequence to their proper level, and from whence a good many of them never ought to have moved. 'Aunt Betty's' children must be provided for, and paid for with the public." "Don't mind, Old Tom," says Uncle Henny, "stick to un; your invention is a grand thing, and you'll be a great man yet. See what took place in a few years, and the wealth of some people, by a certain invention in this neighbourhood. Some of the parties wor not a bit richer than you, Old Tom."

"I've ben thinken a good deal lately," says Uncle Henny, "about the remarks Cousin Will made on deep mining a year or two ago, and the effect the granite and the elvans to the south of Camborne Vean, Stray Park, Wheal Goas, Wheal Killas, &c., would have on this run of lodes if seen at a much greater depth." "And I believe," says Jan Temby, "as I said then—that if the whole run from Dolcoath to Camborne Vean wer sunk 500 fms. deep, there would be the richest run of bals ever sen or heer'd tell of in this country or any other country, and I'm sure machinery will be invented to work the then mines so easy 500 fms. deep as 300 fms. deep. So the big managers and capn dressers will be wise to give a helpen hand to the man who can save the tin, after the great cost of getten it, from washing away, as well as to the inventors of machinery for deeper mining." "There's no doubt about it," says Jan Jewill, "and if real honest miners have fair play, and capns made without friendship or favour, and all the relations of 'Aunt Betty' kicked out, and the

big humbugs sent where the ought to be a long time ago, we may hold up our heads, and defy all the foreign mines and all the world." "You forgot, Jan, to put in," says Jemmy Dowa, "that the men must make up their minds to work long cores—long extents; no more 'four-weeks months' or holidays, except Whitsuntide, Christmas, and Good Friday; but I don't blame any man for taking Sunday excursions now and then." "I have paid great attention to your conversation, men," says Cousin Will, "and you certainly have struck at the root of the matter. I fear, however, that it is inherent in human nature to measure a man's ability by his success. Talent and honesty are completely obscured by success, and so long as this is the case the public multitude and private individuals will follow the shadow and lose the substance." "Then if the will do this, I say the have no right," says Old Tom, "to complain of dividends of cost instead of dividends of profit. A man cannot expect to gather grapes from thorns."—*From Cousin Jack's Unpublished MSS.*

Meetings of Public Companies.

PRINCE OF WALES MINING COMPANY.

A special general meeting of shareholders was held at the company's offices, Gracechurch Buildings, on Thursday.

Mr. J. Y. WATSON in the chair.

Mr. C. B. PARRY (secretary) read the notice convening the meeting.

The CHAIRMAN explained that this being merely a special meeting for the forfeiture of shares their business would really be confined to the passing of a single resolution, but for the fact that one of the defaulters had made a proposition to give an acceptance at three months for the amount due from him. As there appeared to be no doubt that the bill would be paid upon arriving at maturity, they thought they might meet the case by deferring the forfeiture. It would of course be understood that the shares could not be dealt with by the shareholder in the meantime, and the resolution would be passed so that if the bill were not met the forfeiture would be complete without any further resolution. The only question was whether they could pass a resolution for the restoration of any of the shares, as no notice of such resolution had been given.

Mr. PHILLIPS said that it was quite customary to do so in Cornwall.

Mr. KERLY (the solicitor) thought there could be no doubt that they had full power to pass the resolution proposed, as it merely modified that for the forfeiture of the shares. But even assuming that it was a resolution which they could not pass, it would not affect the general body of shareholders, as the only parties who would be in a worse position by invalidating it would be those whom it was sought to relieve.

The resolution for the forfeiture of all shares in arrear of call was then unanimously carried, and upon the proposition of Mr. WAGSTAFF, seconded by Mr. KERLY, it was also resolved that any of the forfeited shares in respect of which the arrears of call might be paid within seven days of this date be restored to the respective parties. This terminated the business of the special meeting.

The notice of the adjourned general meeting and minutes of the preceding one having been read,

The CHAIRMAN said he had to report that he had not been able to see the parties who were desirous of purchasing the silver lode, as the principal was abroad. The lode, however, has been examined and tested, and a sample of the stuff taken from it produced at the rate of 177 ozs. of silver to the ton of stuff. This was taken from an adit 24 fms. deep, and whole to surface. There is another adit 15 fms. below this, taken up at the old Wheal Brothers 20 fm. level; that ground on this silver lode can be worked in the Prince of Wales for several hundred fathoms in length, and 40 fathoms deep, without the aid of machinery, and at little cost. Capt. Andrews states that at Wheal Newton from one spot 1000*l.* worth of silver was obtained in one night. Under all these circumstances the CHAIRMAN submitted that it would be best to adjourn this meeting for a month, and then, if no other satisfactory arrangement could be made, to make a call, or determine upon a limited company and work the silver lode independently. Mr. Baylis is unable to attend the meeting, but he approves of this proceeding, and is ready to become a member of the committee and work the silver vigorously. They would be better able to understand the exact position of the mine from the report of Capt. Andrews which Mr. Parry would read to them.

Aug. 29.—Since your last meeting, held on the 17th inst., we have broken samples from the back of the 24, or deep adit level on the silver lode, which has since been assayed by Mr. Jenkin, of Callington The No. 1 sample, which was of picked stones, gave an assay of 177 ozs. of silver to the ton of stuff. The No. 2 sample, which was an average of the small stuff broken, gave an assay of about 5 ozs. to the ton of stuff, which, of course, would not pay to work; but that is scarcely any guide, as it is almost impossible to take a fair average sample from a silver lode, as the silver is generally found in bunches, so that the lode may be very poor to day, and to-morrow it may be very rich. The samples we broke were from different places in the back of the deep adit level, which apparently is whole ground to surface, and a sample giving 177 ozs. to a ton of stuff shows there is rich silver in the ground; and as this part of the mine can be worked very cheap (no water charges, and very easy ground), I think the chances are very good for finding silver in paying quantities, and possibly give large profits, as a good deposit of silver tells in money very fast. I was told a few days ago that in the adjoining mine (Wheal Newton) they broke 1100*l.* worth of silver from one point in one night. If the company think well of working on the silver lode I would advise operations to be commenced in the back of the 24 or deep adit level; in fact, in back of the same level, and close by where the silver was raised three or four years ago; at this point the deep adit is 25 fms. from surface. This adit is taken up at Wheal Brothers old mine, but there is another deep adit which comes in 15 fms. deeper than Wheal Brothers, which is 40 fms. from surface, so that the silver lode can be worked for several hundred fathoms in length, and at a depth of 40 fms. from surface, without pumping machinery, so the monthly cost, if the ground is worked, will depend entirely on the number of men employed, as timber and horses for drawing the whim will be almost the only additional cost.—JOHN ANDREWS.

Mr. WAGSTAFF enquired whether they had any shaft down to the silver lode which would enable them to work it economically?

Mr. PHILLIPS said they had even better than that, for they had two adit levels which went right into the lode; above the shallow adit they had 25 fms. of backs, and he understood that the deep adit was 15 fms. lower. There was no doubt that the lode was very rich in Wheal Newton.

The CHAIRMAN explained that the silver was found in a white chalky-looking mass, but of course was not regularly disseminated through the lode like copper and lead: silver usually occurred in small bunches, and at the Prince of Wales the ruby silver was found in the chalky mass he had mentioned. He had stated at the previous meeting the position of the Wheal Newton property with regard to the Prince of Wales property, and that a proposition had been made to take over the machinery at a valuation and the property on condition of giving the Prince of Wales shareholders fully-paid shares in the amalgamated concern.

Mr. WAGSTAFF asked what they were getting out of the lode in Wheal Newton, and whether they had been trespassing on the Prince of Wales property?——The CHAIRMAN believed that all they had done was to take some samples out of their adit to have them tested.

Mr. PARRY said that their silver lode was half a mile long, but it was not the Wheal Newton lode. Theirs was the well-known old Wheal Brothers lode, and was parallel to that in Wheal Newton. They had had several hundred pounds worth of silver to the ton of stuff.

Mr. PHILLIPS remarked that at the recent meeting of the Cornwall Polytechnic Society Prof. Warington Smyth was reported to have said that the Wheal Newton lode was worth several hundred pounds per fathom.

Mr. WAGSTAFF enquired what had been done with regard to an arrangement with Wheal Newton since the previous meeting?

The CHAIRMAN said that owing to Mr. Emmens's absence in Paris the matter remained open, but he understood he would return to-day, so that they would at once close the matter, and if a satisfactory arrangement could not be effected in that direction they would probably form a distinct company to carry it on themselves.

Mr. HILL recollected that five or six years ago a great deal—perhaps too much—was written by Mr. Thomas Barnard about Wheal Newton, then called the Queen, and the opinion that had been created in his mind was that it would be unwise to give too much attention to the silver.

The CHAIRMAN said that at the time Mr. Hill referred to they also got some good quantities of silver out of the Prince of Wales, but it was obtained through the Queen shaft. The stoppage of the Queen prevented the Prince of Wales from getting out more of their ore, which it was now proposed to turn to account. He thought if they could get the value of their machinery cash and one-tenth of the capital in a new company to be formed, as a bonus, the arrangement might be worth making.

Mr. KERLY suggested as, in the event of a new company being formed by the Prince of Wales shareholders themselves it would be a distinct concern, it might be well to ascertain the feeling of the general shareholders, and how much of the proposed new capital could be relied on.

The meeting was then adjourned for a month, and thanks having been voted to the Chairman the proceedings terminated.

BELSTONE MINING COMPANY.

The adjourned general meeting of shareholders was held at the offices, Royal Exchange Buildings, on Tuesday,

Mr. G. A. HILLIER in the chair.

Mr. REEVES (the secretary) read the minutes of the last meeting.

The CHAIRMAN said he had but few observations to make on the present occasion. The shareholders would remember that at the previous meeting a hope was expressed that during the period of adjournment the preference capital which they were endeavouring to get would be subscribed. In this they had met with tolerable success, considering all things; but, notwithstanding that the efforts of the directors had been considerable, and the prospects of the mine were better than was anticipated, yet the subscription had not been so large as they hoped, and not an amount sufficient to enable the mine to be worked in a proper manner. The improvement in the stopes and upper levels still continued, and for the last six or seven weeks a good profit had been made, thus preventing the actual stoppage of the mine. But still there was a want of capital, and without money they could not carry on the works. He must say the directors were rather surprised at the apathy of the shareholders in not coming forward more readily to ensure the safety of the mine, which otherwise must fall into the hands of the bondholders, who were the mortgagees of the property. Therefore, with the view of making still further efforts to raise the necessary money with which to pay off the bondholders, and also to carry on the works necessary for the further development of the mine, the directors intended to ask for a further adjournment of the meeting for a month. He might say the mine never looked so well as now. The lode in the 80 fm. level had been cut, and looked promising, whilst the stopes were yielding more ore than last year, when the ordinary shares were worth from 2*l.* to 3*l.* Looking at these facts, and taking into consideration the improved prospects of the mine, the directors thought an effort should be made to raise the necessary capital, and to enable time to be given for this to be carried out he moved that the meeting be adjourned until Wednesday, September 26, at two o'clock in the afternoon precisely.

Mr. MARTINEAU seconded the resolution, which was put and carried, and the meeting adjourned.

BIRDSEYE CREEK GOLD MINING COMPANY.

The annual general meeting of shareholders was held at the offices of the company, Austinfriars, on Thursday,

Mr. J. T. P. PECHEY in the chair.

The notice calling the meeting was read by Mr. W. J. LAVINGTON (the secretary), and the report of the directors was taken as read.

The CHAIRMAN, in moving the adoption of the report and accounts, said he was sure they must all feel some regret that the directors had not a more flattering statement to present for the last financial year, but, as had been stated in the report, the whole matter seemed simply to turn upon the water question. Two years ago the directors had to come before the shareholders and state that the season in California had been unusually dry, but the past season seemed to have even out-Heroded Herod, and it was stated on good authority that, looking back on the history of California as a gold-producing country, which now extended about 28 years, there had never been so dry a season as the past, and recently claims had been taken up and worked in river beds which had never been worked before. Generally they got one dry seasom in about eight years, and that was generally followed by a very wet one, and he hoped it would be the experience of the company in the coming season. In the report the directors stated that by the time of the annual meeting they hoped to be able to report a change for the better in the financial position. The directors at the time of writing that hoped to have received the result of the cleaning up, but he presumed that Mr. Powers, the superintendent, had scarcely had time to complete his cleaning-up. In the balance-sheet there was an item of "Due to G. S. Powers, superintendent, 1028*l.*;" but he was happy to say that by the last clean-up, which was received six weeks ago, that amount was reduced to 500*l.*, and the directors had not the slightest doubt that by the final clean-up not only would that balance be wholly wiped out, but the company would be left with a considerable balance to the good. That would put the company in a much better financial position. There was nothing hanging over it, as the debenture-holders had consented to postone the payment. In three months they would commence washing again, and he hoped that with a reasonably good water season they would be able to do much better than they had done hitherto. All the information possible was given about the different claims of the company; the property was there, and there was no doubt about its value, and they were in a far better position to-day as far as the claims were concerned than when the company was started. They had exhausted but little of the channel; there were still 5000 or 6000 ft. of the channel untouched before them when they could wash it. There was no doubt that profit was to be made in dry weather, but the necessity of remaining idle for seven or eight months for want of water had necessarily eaten up the small profit which had been made. It was true the profit of 49*l.* odd named in the report was put down as the profit on 12 months, but there had been months when large profits were made, but those profits had been swallowed up by the costs in the dry season. He hoped the time was coming when they would get at least one "head" of water all the year round. Mr. Bowe, one of the directors, to whom they were all much indebted, had spent some time upon the property, and could give every information. All the profit which had been made had been made with one intermittent head of water, and when they were at work every month showed more and more profit. But they wanted three heads of water—one for the Red Dog claim, one for the Neece and West, and one for the Waloupa. Looking at all these things, the directors were justified in saying that at no period in the history of the company had the property been in a better position, when the water came, than at the present time. The shareholders were very greatly indebted to Mr. Bowe and Mr. Powers, who had managed to keep the company clear from those lawsuits in which so many American mining companies had been involved. At present they were unable to pay Mr. Bowe for his great exertions on behalf of the company, but he hoped the time would come when they would be in a position to recompense him. He honestly believed that with a good supply of water the claims were in a better position than at any previous time. (Hear, hear.) In conclusion, he (the Chairman) moved the adoption of the report and accounts.

Mr. GEORGE BATTERS seconded the resolution.

Mr. BOWE, by the aid of a plan, then explained the position of the workings, and the progress which had been made.

Mr. BATTERS asked whether they would be called upon to make any further large outlay before they washed in very profitable ground?——Mr. BOWE said nothing more than extending the tunnel heading in the channel, which would be done year by year out of profits. In the meanwhile the ground in which it was being extended would pay for washing whilst the work was being done.

Mr. BATTERS said those were very important and satisfactory points, because it was reassuring to know that no further great outlay was necessary—a point upon which probably some of the shareholders might feel some little anxiety.

Mr. BATTERS: And you think the anticipations which are held out stand a very good chance of being realised?——Mr. BOWE said that from a personal survey and inspection of the mines he was convinced that there was an excellent prospect of the anticipations being realised. Since the company was started its area had much increased by the purchase of adjoining properties, and were now about 5000 ft. of channel before them on which to

Mr. BATTERS said he thought that with a wet season, they now in a fairly good way to make profits for the shareho There was no doubt there was plenty of gold, and with a average wet season they would make good profits.

The CHAIRMAN said, in answer to a question, that the rainy would commence about the middle of December.——The repo then received.

The CHAIRMAN said the board did not propose to fill u vacancy caused by the resignation of Mr. Ward, considering four gentlemen were sufficient on the board.

Mr. C. O. Rogers was re-elected an auditor, and Mr. Hopk was elected a auditor in the place of Mr. Bennett, retired.

Cordial votes of thanks were then passed to Mr. Bowe, t Powers, and to the Chairman, and the board, and the me broke up.

THE RAVENSCLIFF MINING COMPANY.

A meeting was held at the offices, King's Arm's-yard, Moo street, on Monday,—Mr. FREDERICK PETERSON WARD in the

Mr. C. GRAINGER (the secretary) read the notice convenin meeting.

The CHAIRMAN said that the meeting was convened und 39th clause of the Companies Act, 1867. It was purely a f meeting in order to comply with this clause of the Act. A meeting the board had nothing to submit to the shareholders, t they would be happy to answer any questions, and give any mation that might be desired.

No information being asked for by those present the me separated.

TRURO LEAD MINING COMPANY.

The annual general meeting of shareholders was held at the Feather's Inn, Nerquis, on Monday,

Mr. W. BELLISE in the chair.

Mr. EDWARD BYTHELL (the secretary) having read the convening the meeting,

The CHAIRMAN congratulated the shareholders upon their factory position, remarking that it was gratifying to perce marked an improvement in the prospect from this time 12 m After many difficulties with water, air, &c., the new shaft ha completed, and that they were now in a fair way to see th pectations realised. It had certainly required a good sum to a plish this. But it was encouraging to know that every authority that had visited the mine were unanimous in telli that our prospects were equal to any on the formation. I wi no further comment on the statement of accounts than to gives the most positive proof of how the property is estimat the shareholders in general when so favourable a statement i duced.—The subjoined report was then read:—

Aug. 24.—Since my last we have completed sinking the new shaft to which we attained at the depth of 42 fms. The shaft is well timbered to the bottom, and will remain serviceable for many years to come. Th this point is 5 fms. deep, composed chiefly of boulders of limestone, clay and black chert, with loose sand and blacking. After making a spacious the bottom of the shaft we extended a level south 22 fms. In driving th we have at different times come across small quantities of lead, intermix spar, bearing all the characteristics of the spar and other ground found in P East Pant-du, Jamaica, and Lisburne Mines. I have this week set the rise 3 fms. north of end, so as to more effectually develope the flat at thi We meet with spar of very superior quality in large quantity, and from t proximity this spar is generally found to the deposits of lead in this for I am inclined to believe we may meet a similar result here. The southern at present composed of light shale, black chert, and limestone boulders, e the north end of the ravine, which is perceptible on surface, and in like affects the flat in depth.

North of shaft we have only driven 1 fathom. The ground here is favo for driving, and I have strong faith that when this level is extended some d you will be rewarded for your outlay. We have north of the present end co evidence of the junction of a masterly lode with the flat. The importance is seen by the success that has attended other adjoining mines when simila sections have taken place. It is also north of this end that we must expe tersect the leader of lead discovered at Bwzan shaft, and for these reasons I desire to give this end a strenuous development. You have two other re portant points on the sett which I can without fear of contradiction ass equal to any on these measures as to their prospects—south of the sett, discovery at Pant-du, a few yards north of the hanging-wall of old Pant d and north of the sett on the supposed crop of Pwllygasseg lode. It would g great pleasure to have your instructions to begin operations at these points. In conclusion, I can say that you have all the elements concern this sett necessary to make a productive flat, and I have every reason to belie ultimately your endeavours will be crowned with success.—J. A. EDE.

A SHAREHOLDER: Would it not be advisable to put the men now drivi on the north end?——Capt. EDE, in replying, objected to this, the level co entering the objective point in view when starting.

Mr. OLDFIELD would think it a mistake to abandon this end until a tended trial had been given.

Mr. HUGHES requested to know whether anyone had been recently in the mine?——The CHAIRMAN said he had much pleasure in telling them t agents had very recently been down—Capt. Roberts, of East Pant-du Mi Capt. Julian, of Rhosesmor Mine. They were both very sanguine that we be successful.——The report and statement were then received and adopte

Mr. Bellise, Mr. Oldfield, and Mr. Evans, being the three retiring directors re-elected, and the meeting terminated with the usual compliments.

TYN-Y-FRON LEAD MINING COMPANY.

At a general meeting of shareholders, held at Gresham H London, on Aug. 18 (Mr. T. P. THOMAS in the chair), the Secr having read the notice of meeting, and the reports on the m Capts. A. Francis and E. Jones, it was resolved that Messrs. C Morris, W. E. Lockhart, and Dr. E. Rowland be the directors company; that Mr. H. Francis be the secretary, at a salary of guineas per annum; and that Mr. G. A. Symonds be the audi the company. The following reports were read to the meeting

I beg to hand you my report for your meeting of the 18th inst. Since th pany commenced operations the adit cross-cut has been cleared out, first l south lode, a distance from the adit's mouth of 25 fms. On this lode we opened about 2 fms., which was driven to the east of the cross cut, the lode from 3 to 4 ft. wide, composed of gossan, lead, and blende ore, and as it now when we shall have erected our machinery, is a vein that can be worked at profit. The north lode, which is the main vein, and is 9 ft. wide, we found north from the mouth of the adit (and 4 fms. distant only at this place fro south lode), which is composed of gossan, quartz, lead, and blende, and for fathom, and yielding 3 tons of blende, 5 cwts. of lead, and good stones of ores. The adit level has also been opened out eastward for a distance of which I estimate to yield the same quantity of minerals, and to be worth th per fathom—15*l.* We have not yet cleared the eastern level into the fore our men being engaged in driving in the extreme western end, where so far have cut through the lode we have found it productive. We have yet about more to drive to get through it, and when this is accomplished we shall tu attention to the clearing out of the eastern wookings to the forebreast. Fro position of the two lodes they will intersect or join each other both in leng in depth throughout the entire distance of the grant, and I feel no hesita expressing a decided opinion that throughout this distance, nearly, if not ½ mile, a very productive and profitable section of ground will be found laid open, which must and cannot fail in making the property a rich and di paying mine for more than the term of the present lease, however vigoro may be handled. All that is wanting is proper machinery for drawing, pu crushing, and dressing, which can all be erected for a cost of 750*l.* The Rheidol is brought into the mine, and affords a never-failing supply for a poses. A good road leads to the mine, whilst the improved methods now for cleaning the ores in this county will make all the descriptive kinds reali full intrinsic value, which could not be done when the mine was working last parties. There is an abundance of ore now laid open, enough to last for years Our eastern end will now have a cover of about 30 fms. over the ad by driving in this direction we shall eventually obtain a height of 100 fms. conclusion, I can and do congratulate the present proprietary with having a property of no ordinary richness, and one that cannot fail in paying very some and increasing profits every year of its being worked. I need not should advise the erection of all the necessary machinery as early as poss there is now a fine pile of blende, lead, and copper ores at surface, and any re able quantity can be broken monthly. All the material taken from the lo been found to contain good ore, and must be dressed; this we discovered the case in making a trench to carry away the water from our surface ore de We have also had our men engaged in making a good path to enter the which is now accomplished.—A. FRANCIS, M.E.: *Goginan, Aberystwith, Aug.*

Aug. 15.—We commenced working here on June 1 by clearing the mouth main cross-cut; afterwards we cleared the adit level driven west, timbered a amined the two stopes, and have since driven two short cross cuts—one n about 5 ft. to see the south lode, and another about 14 ft. north, as Capt. F suggested. We have not yet done much in the adit level, east of the main cut, beyond examining the ground, having found it necessary to cut a water to prevent the entrance to the adit from being choked during floods, and to a better approach to the mine. In the western level the first stope from main cut, about 4 fms. long, contains blende, which I estimate to be worth about per fathom. Between the first and second stope is 7 fms. of ground, cont blende not yet cut down, perhaps worth a little less than the stopes. I find top of the winze sunk here blende worth about 1¼ tons per fathom. In the stope, about 10 fms. long, we find blende worth about 3¼ tons per fathom, about 5 cwts. of lead also per fathom; there is also copper here—any, about

the fathom. Under this stope there is a cross-cut south showing blende worth 1½ ton per fathom. In the cross-cut north, referred to above, about 3 fms. of second stope, we have cut blende, but are not yet far enough in for me to speak upon its value. In the eastern level the first stope, 3 fms. from main cross-cut, is worth about 1 ton of blende per fathom, with a mixture of lead, worth about ½ ton per fathom; the stronger or north part of the lode is not cut down. The next stope, about 7 fms further east, has blende worth about 1½ ton per fathom. The third stope, 3 fms. further on, has been worked nearly to surface, but we find fine lead standing in the north side, worth 4 to 5 cwts. per fathom; under this is an underhand stope now covered up, and therefore not yet examined. The lode is as underhand stope, has been worked high up; more lode is standing in No. 4, 2 fms. eastward, but I cannot at present value it. A little further on is a winze to the north, but I cannot at present value it. A little further on is a winze sunk 10 fms. deep still filled with water; at the top of this there is blende worth about 1 ton per fathom, and a thin band of copper, worth about 2 cwts. per fm. In No. 5 has also been worked upwards, and there is an underhand stope full of lead. I have also been worked upwards, and there is an underhand stope full of copper: this stope also waits examination. For 20 fms. on we find blende and copper in places, but less in quantity than those already stoped. I feel sure that the lode will improve, and especially the western end, will well repay expense of working, as it is more and more profitable when continued in depth, as it is stated that there is very good copper at the bottom of the eastern winze. We have a very good pile of blende with some lead and copper mixed at surface, to which we have been adding from underground.

TOLGUS CONSOLS MINING COMPANY.

The statutory meeting of shareholders was held at the offices of the company, Great St. Helen's, on Thursday,

Dr. JOHN GURNEY KELLEY BURT in the chair.

Mr. E. J. BARTLETT (the secretary) read the notice convening the meeting, also the following report from the manager:—

Aug. 28.—We have now opened through the lode west of the cross-course in the 25, Throughout this drivage, excepting the last 2 fms., we have a distance of 12 fms. and small veins, consisting of quartz, containing rich and several branches varied continually in size, and copper ore. These veins or branches have varied continually in size, and proportion of ore which they contained, and the largest has had an average of about 4 inches, whilst the width of the belt of rock embracing whole of them has been about 5 ft. The direction of these parts of the lode toward very little from due east and west, and the underlay has been from 1 ft. to 3 ft. per fathom north. We also found some other parts of the lode striking in a north westerly direction, but, after including them in our drivage for some fms., found the divergence of the north and south parts made the width so great that we were obliged to continue on one, and leave the other *pro tem.*, and, therefore, drove forward on the north branches, which then contained the larger portion of copper.

The appearances, however, in this direction became less favourable as we went further from the south parts, and I thought it best to remove the men, and open the drivage, which we have been doing in the last few days, and have advanced 12 fathoms further west than the north drivage. I have pleasure in saying that the prospects at this point are improving, and are, I think, better than those noticed at any previous point of our western drivage. We appear to be getting into a compact lode instead of the split up one which we have hitherto had, and the back or floor, about 4 ft. thick, extending from the bottom of the end towards the west. There is a fair proportion of copper ore; this floor appears to be rising in the direction of west, but as there are appearances in the south wall leading me to think that there may be more lode in that direction it is possible that our present course may lead us into a junction with other parts to the south, which may alter the general bearing of the lode to one more nearly east and west. On getting another few feet further should there still be doubts as to parts farther south I will have the side blasted in that direction; the lode has at present scarcely any underlie.

The work has become easier for driving through, the price to the men having been reduced from 9l. 10s. to 6l. 10s. per fathom. These encouraging appearances are confirmed still more so by the fact that they are so exactly similar to the indications which were presented in our adjoining neighbour, West Tolgus, in the drivage immediately from the cross-course in that mine before the large course of copper ore was discovered there was cut into, so that we cannot do better than push on our present drivage as expeditiously as possible. I consider that it would be advisable to continue the drivage eastward from the cross course. We have also to keep in view the question of the bottom, or 40, north from the engine-shaft, by which I think the appearances are exceedingly good of our cutting a large course of copper ore. The appearances presented in the cross-course in the 25, where we had splendid lumps of copper ore, as well as those in our present drivage on the lode, quite warrant this extra outlay. We could get everything ready for commencing the cross-cut north, in about a month, and in six months should intersect the lode.

The increase of the present cost occasioned by this operation would be about 60l. per fathom. I have only to add, in conclusion, that looking at the fact that the adjoining us on the north (West Tolgus) is now by far the best copper mine in West Cornwall, with resources already laid open for much larger sales of copper, and proportionately larger dividends, than have yet been made, and also at the fact that portion of our sett parallel to West Tolgus has already produced more than 30,000l. worth of copper, and been worked only to a depth of 118 fms. in the adit, whilst our neighbouring mine referred to has become much richer than ever was before at a depth 20 fms. greater; looking also at our western drivage, the site of our present workings, and the great similarity of the appearance of the lode, and general indications now being opened out to those already experienced in West Tolgus, I think I am quite justified in saying that there is a mining grant in this rich district holding out such splendid prospects as Tolgus Consols.—W. C. VIVIAN.

The CHAIRMAN: I think we have reason to congratulate ourselves upon the much improved prospects of the undertaking. I attach great importance to the change that has taken place in the underlay of the lode in the driving west at the 25. The great course of copper ore in West Seton was struck soon after the lode changed its underlay to a shallow level, and seeing how steadily the lode at our 25 has improved during the past three weeks, I think we have reason to congratulate ourselves upon possessing a valuable property situated in a district famous for the production of large quantities of excellent tin ores. Although, gentlemen, at this meeting, which has been convened in accordance with the company's Act, little can be reported, still I think I am justified in stating that at our next meeting we should be in a position to announce tangible results, and in addition to the present workings we shall shortly tackle the eastern part of the sett, from which great results may be expected. A vote of thanks to the Chairman terminated the proceedings.

WHEAL POLDICE.—At the meeting on Thursday (Sir F. M. Williams, Bart., M.P., in the chair), the accounts showed a profit on the four months' working of 6l., reducing the debit balance to 535l. The agent reported upon the various points of operation. The Chairman, in moving that the accounts be passed, mentioned that he had made an alteration in the management of the mine which he hoped would meet with their sanction and approval. As they were aware, Capt. Brown, their late agent, had been for some time in ill health, and as there was little hope of his getting better, he (Sir Frederick) had taken upon himself, without calling the shareholders together, to appoint Capt. George Tremayne in his place. He was glad to say that, considering West Poldice was a small mine, their returns of tin were satisfactory, the returns for the last four months having exceeded 50 tons, and if the price of tin had been 20l. a ton better, it would have made a difference of no less than 1000l. in the receipts.

WHEAL PREVOR.—At the meeting on Thursday (Mr. T. Pryor in the chair) the accounts showed a working profit on the four months of about 350l., but as 400l. was written off on capital account the mine was 51l. The total debit balance is about 1400l. The Chairman said that some 12 months ago the adventurers resolved to erect new machinery and dressing appliances. The cost of this was 2000l., and when the outlay was incurred, the arrangement made by the adventurers was that the payment should be extended over a series of meetings. In this way about 1200l. had been paid off, and consequently there was a balance of 1460l. now remaining due. As against this they had a credit of at least 500l. in respect of the tin on the floors, and in dealing with the question of their liabilities they must not forget that they had this valuable asset. He believed that between this and the next account they would be in a position to pay off a considerable portion of the debt, for even with the present low price of tin they could make a good profit and with an advanced price they would be in an excellent position. Mr. W. H. Rule asked Capt. White whether he could suggest any plan by which the cost of working the mine could be lessened? Capt. White could not; and he stated that whereas formerly their working cost was 60s. a ton it was now only 40s. He also directed attention to the large amount of work that had been done on the mine during the last 15 months, and stated with very great confidence that Wheal Peevor was never in a better position than it was at the present moment, as regarded both surface and underground operations. Mr. Rule said that they could import good coal at 16s. 2d. from free on the mine, and the matter is to receive attention. A call was made.

GLOUCESTER WAGON COMPANY.—The annual report states that the trade is still in a depressed state, and there is no prospect of improvement. The accounts point to the fact that in face of keen competition the company has more capital than can be profitably employed, and it is, therefore, proposed to pay back to each holder of paid-up stock 50 per cent. of the amount standing to his credit in the company's books; one-half to be returned during the current year with interest at the rate of 5 per cent., and each stockholder to receive the amount in cash or in debentures bearing interest at 4½ per cent. per annum for three, five, or seven years, the other half to be dealt with as the directors may see fit. In order to make up a dividend for the year, the sum of 5577l. will have to be taken from the reserve fund.

[For remainder of Meetings see to-day's Journal.]

Registration of New Companies.

The following joint-stock companies have been duly registered:—

ORE TREATMENT COMPANY (Limited).—Capital 10,000*l.*, in 5000 A and 5000 B shares of 1*l.* To treat ores and minerals for the extraction of metal, and for this purpose to acquire land at Swansea belonging to Messrs. Richardson and Co., of Port Tennant. The subscribers are—F. J. Bolton, 19, Grosvenor Gardens, lieutenant-colonel, 100; J. E. Dowson, 3, Great Queen-street, civil engineer, 100; R. W. Richard, Southfield, Wandsworth, civil engineer, 100; F. J. Bewick, Haydon Bridge, Northumberland, civil and mining engineer, 100; F. B. Bewick, Haydon Bridge, Northumberland, civil and mining engineer, 100; H. Richard, 4, Broad Sanctuary, S.W., accountant, 1; E. Penman, jun., Edith Villas, Peckham, accountant, 1. The directors are not yet appointed, but the qualification is fixed at 100 shares.

GLOSSOP IRONWORKS (Limited).—Capital 20,000*l.*, in 5*l.* shares. To erect mills, foundries, &c., and to carry on business as engineers, ironfounders, &c., at Glossop, Derbyshire. The first seven subscribers are—E. Partington, Glossop, 100; Samuel Rowbottom, Hall-street, Glossop, 20; Thomas Hampson, Glossop, 20; James Pollitt, Glossop, 20; J. Merry, Glossop, 10; W. Thorpe, Glossop, 10; Cyrus Garside, Glossop, 10.

SWINNEY BROTHERS (Limited).—Capital 15,000*l.*, in 10*l.* shares. To carry on business as engineers, ironfounders, &c., at Morpeth. The subscribers are—W. S. Vaughan, Coxbridge, Newcastle, 10; Thomas Swinney, Morpeth, 20; Robert Oliver, Morpeth, 10; William Grey, Morpeth, 10; T. R. Miller, Morpeth, 10; Thomas Waters, Morpeth, 5; R. Alder, Morpeth, 10.

AMAPALA COMPANY (Limited).—Capital 9000*l.*, in 180*l.* shares. To carry on business as bonded warehousemen, wharfingers, and commission merchants, &c., in Salvador, Costa Rica, Honduras, Nicaragua. The subscribers (who take one share each) are—L. A. Campbell, Manchester; C. Roberts, Burnley; C. S. Campbell, British Vice-Consul, Port St. Mary, Spain; W. Watkins, Selborne-road, Denmark-hill; J. R. Stead, Gt. Tower-street; W. T. Kelly, 117, Leadenhall-street; H. Schmidt, 47, Mark-lane.

BOURNEMOUTH CAB AND CARRIAGE COMPANY (Limited).—Capital 8000*l.*, in 5*l.* shares. To carry on business as fly proprietors at Bournemouth.

ORIENTAL SUGAR REFINERY OF HONG KONG (Limited). — Capital 120,000*l.*, in 10*l.* shares. To acquire the business of sugar refiners carried on at Hong Kong by Messrs. Smith, Kiar, Frederick Dawson, and Washee, together with certain Letters Patent and plant, &c. The subscribers are—J. B. Alliott, Bloomsgrove Works, Nottingham, 50; J. H. Cordon, 54, Miller-street, Glasgow, 50; J. Beattie, 24 and 26, Buccleugh-street, Dumfries, 50; F. G. Dawson, 108, Bishopsgate-street Within, 10; W. McGregor Smith, South Hackney, 1; J. Clewer, 27, Finsbury Park, 50; John Fisher, 24, Mark-lane, 10.

NOTTINGHAM AND DISTRICT TRAMWAY COMPANY (Limited).—Capital 80,000*l.*, in 10*l.* shares. To acquire the rights and powers conferred by the "Nottingham and District Tramways Order, 1877," authorising the construction of tramways in Nottingham. The subscribers are—D. Busby, Holyrood House, Liverpool, 20; P. Eberle, Blundellsand, Liverpool, 20; Joseph Sturge Gilpin, Nottingham, 20; Edwin Goldschmidt, Nottingham, 20; J. W. Greig, Ellington-street, N., 20; J. Sealey Lawrence, Addison Gardens, West Kensington, 1; J. Lathbury, Coburg Hotel, Charles-street, W., 1.

BRISTOL STEAM NAVIGATION COMPANY (Limited).—Capital 150,000*l.*, in 5*l.* shares. To acquire by agreement with Sir John Arnott certain steamships and premises purchased by him from the Bristol General Steam Navigation Company (Limited) now in liquidation. The subscribers are—John Arnott, Woodlands, Cork, 100; Charles Nash, Bristol, 100; C. J. Thomas, Drayton Lodge, Bristol, 100; John Lysight, Springfoot, Stoke Bishop, Bristol, 100; Mangerton Arnott, Bristol, 100; E. R. Burns, Cork, 100; J. G. Longlands, Bristol, 100.

SANITARY AND GENERAL LAUNDRIES (Limited).—Capital 100,000*l.*, in 5*l.* shares. To establish laundries and to carry on business as dyers and bleachers. The subscribers (who take one share each) are—F. E. Marshall Steel, 13, Great James-street; A. E. Coe, 4, Furnivall's Inn; F. W. Rintoul, 70, Basinghall-street; J. L. Ashburn, Windsor Cottage, Camberwell; A. Pleess, 14, Traver's road, Finsbury Park; D. Hughes, 8, Grange-road, Finsbury Park; and F. B. Pocklington, Sydenham.

GREAT YARMOUTH INVESTMENT COMPANY (Limited).—Capital 20,000*l.*, in 5*l.* shares. The title of this company indicates its proposed object. The subscribers (all of Great Yarmouth) are—J. H. Owen, R. Martins, S. G. B. Palmer, J. A. Norman, L. Blake, T. J. Lane, and C. J. Blake.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week there has been a fair amount of business transacted, notwithstanding the settlement intervening, and there is evidently more disposition both on the part of buyers and sellers to enter into transactions. A note of the business done on contango day is given below. The current account is a short one, settling day being on Sept. 13, and last day Sept. 10. In shares of iron and coal concerns Marbella have improved 1s. per share, while Benhar are 2s. 6d. lower. The Great Western colliery meeting will be on Sept. 6. A dividend of 3s. per share is recommended on Charlestown Brick and Tile shares, which will make 5 per cent. for the year with the interim dividend paid in February last; about 900*l.* is carried forward. The Bolckow, Vaughan dividends are also recommended, at 22s. 6d. on A, and at 15s. on B shares, payable Oct. 2, being interim distributions on account of the six months ending June 30 last. The Scottish Australian sales for the month of June have amounted to 13,165 tons, making the half-year's total 79,266 tons. Andrew Knowles and Sons are at 7s. 6d. to 10s. prem. Bilboa, 19¼; Bolckow, Vaughan, B, 36¾; Cannock and Huntington, 70s. dis.; Cannock Lodge, 9; Cardiff and Swansea, 20s. to 22s. 6d.; Chillington, 70s. to 75s.; Chapel House, 45s. to 55s.; Darlington, 12 dis.; Hamstead, 80s. dis.; Henry Briggs, A, 12¾ to 14; ditto, B, 7½; John Bagnall and Sons, 60s. to 70s.; Llynvi, Tondu, and Ogmore, 7; Muntz Metal, 15½; Nant-y-Glo and Blaina (deferred), 30s.; New Sharliston (preference), 75s.; North of England, 6½ 6d.; Norwegian Titanic, 40; Oakham, 10s.; Sandwell Park, 17¼ to 18½; ditto (new), 80s. prem.; Scottish Australian (new), 8s. 9d.; Sheepbridge, 7 dis.; ditto (new), 9¼; Skerne, 5½ to 5¾; Spon Lane, 7¼ dis.; The Horseley, 20s. dis.; Tredegar, A, 16; Turnbridge, 9; West Cumberland, 5 to 5½; West Mostyn, 12 per cent. (deferred), 5; Whitwick 6 per cent. (preference), 10½. Wigan 72.

In shares of foreign copper concerns there is an exceptional depression in Tharsis; the others having strangely exhibited an upward tendency. Tharsis are reduced 36s. 3d.; ditto (new), 25s.; and Canadian, 3d.; while Rio Tinto 5 per cent. have advanced 37s. 6d; Cape, 30s.; Rio Tinto shares, 3s. 6d.; Rio Tinto 7 per Cent., 1s. 3d.; and Huntington, 6d. The past six months' working of the English and Australian exhibits an estimated deficit of 7059*l.*, or 662*l.*, taking credit for the balance as at January last; the reserve fund is now 11,451*l.* A call of 5s. per share is payable on Sept. 1 on some of the Canadian copper shares which had not previously been fully paid-up; but this will make the company's whole capital in fully paid-up £. shares. Rio Tinto 5 per cent. are at 58¾; Yorke Peninsula (ordinary), 5s.; ditto (pref.), 17s. 6d.

In shares of home mines business has been very quiet. Glasgow Caradons were sold at a slight reduction of 3d. per share. The last sale of copper ore by this company (350 tons, on the 23rd inst.) realising 105l., or an average of nearly 84s. 9d. per ton, compares with 245 tons at 91s. last month, 260 tons at 76s. 4d. in the corresponding month of 1876, 246 tons at 118s. 1d. in 1875, and 235 tons at 99s. in 1874. Leadhills shares keep comparatively very cheap, and there is hardly any sound dividend property to be had with so good a margin for a great rise when the present general stagnation both of mineral and share markets ceases. We are glad to hear that there are indications of an important improvement at Gunnislake (Clitters). Aberdaunant are at 11s. Bampfylde, 8s. 9d.; Bodidris, 20s.; Bryn Alyn, 9; Combmartin, 7s.; Denbighshire, 15s. to 30s.; D'Eresby, 17; East Van, 95; Great Laxey, 21; Great West Van, 3s. 9d.; Grogwinion, 50s. to 70s.; Gunnislake (Clitters), 30s.; Holmbush, 35s.; Killifreth, 2s. 6d. to 3s. 6d.; Llanrwst, 42s. 6d. to 45s.; Llan Gan, 80s.; Monydd Gorddu, 60s.; North Hendre, 5½; North Laxey, 15s.; Pensthruthal, 5s. 6d.; Prince of Wales, 2s. 6d. to 7s. 6d.; Saint Patrick, 25s.; South Condurrow, 7¾; Talargoch, 40s.; West Assheton, 15s.; West Chiverton, 12½; West Wye Valley, 60s.; Wheal Agar, 70s.; Windsor Clive, 50s.

In shares of gold and silver mines prices are steady, sometimes a little better. Richmonds have advanced 5s. 6d. per share. Antioquia are at 12s. 6d. Cedar Creek, 8s. to 12s. Chicago, 6ls. 3d. Eberhardt, 5¾. Emma, 1s. 3d. to 3s. 9d. Exchequer, 5s. Flagstaff, 52s. 6d. Gold Run, 7s. 6d. Last Chance, 15s. Richmond, 88s. South Aurora, 4s. St. John del Rey, 300.

Shares of oil concerns neglected. Young's Paraffin show an improvement of 1s. 3d. Uphall a reduction of a similar extent; and Oakbank, 6d.

In shares of miscellaneous companies Phospho Guano are reduced 2s. 6d. per share. Earle's Shipbuilding are at 9. General Sewage, 8 dis. Hopkins, Gilkes, and Co., 8¾ dis. Milner's Safe, 8¾. Patent Shaft and Axle, 1s. dis.; ditto (pref.), 9¾ to 9¾. Palmer, B, 14½ dis.; and Phospho Guano, 10¾ to 11. Wagon Companies shares are attracting some attention. We quote:—Birmingham, 19¾ ex div. Gloucester, 12½ ex div. Metropolitan, 82s. 6d. prem., ex div. Midland, 86 ex div. Oldbury, 8¼. The Starbuck Company declares its usual interim dividend at the rate of 10 per cent. per annum for half-year ending June 30 last. Chemical companies shares are much about the same. Prices:—Langdale's, 88s. 9d. Lawes, 7 ex div. Newcastle, 40s. to 42s. 6d. We omitted, in referring to Lawe's report last week, to note the meeting is held to-morrow (Aug. 31).

On Contango-day (Monday) the following were the rates of continuation current:—Contangos: ½d. on Canadian Copper, 1d. on Glasgow Caradon, 1¼d. on Combmartin, 6d. on East Van, 1d. on Port Washington, 1¼d., 1d. on Huntington, 2d. on Marbella, ½d., 1d. on Monkland Iron, 3d. on Oakbank Oil, ½d. on Omoa and Cleland, 4¼d. on Richmond, 4¼d. on Rio Tinto, 4¼d., 5d. on Uphall, 6d. on Young's Paraffin.—Backwardations: 6d., 7½d. on Tharsis. On comparing the making-up prices fixed to-day for the following shares with those of the previous settlement, the variations shown are more important than for some time past. Tharsis have fallen 28s. 9d.; Richmond, 1½; Tharsis (new), 1; Oakbank, 1s.; also Canadian Copper and Glasgow Caradon, 3d. each. Young's Paraffin have advanced ¼; Monkland, 2s., and Marbella, 1s. The following are unaltered:—Glasgow Port Washington, Huntington, Monkland (pref.), Oakbank (new), Omoa and Cleland, and Uphall.

HENRY BRIGGS, SON, AND CO., Limited (Whitwood, Methley Junction, and Streethouse Collieries, Normanton, Yorkshire).—The directors' report for the year ending June 30 shows a profit of 17,463*l.*, after payment of the interim dividend. The dividend now recommended of 3½ per cent. will give 8s. 9d. per share on the "A" shares and 5s. 3d. on "B" shares, or a total return for the year of 6 per cent. A balance of 868*l.* will remain to be carried forward. A large amount has evidently been invested from revenue on new works completed and still in progress. The directors state their belief that the business is established on an essentially sound and safe basis.

YORKE PENINSULA MINING COMPANY (Limited).—This company's ore returns by last mail advices are—On hand, dressed and undressed, 355 tons of 17 per cent., 300*l.*; dredge ore, 360 tons of 5 per cent., 720*l.*—in all 3720*l.* In future we will give this company's sales in a comparative form, which will show the decidedly satisfactory progress much better. Each month's advices now prove that its highest prospects are nearer realisation, and the shares may at any time become the medium of extensive transactions at so many pounds each as they can now be had for shillings.

ST. PATRICK LEAD MINING COMPANY (Limited).—Results in the shape of dividends are as a rule the only points it would be better to refer to, and of course the purchase of shares for investment by, in mines, as reports are, also as a rule, fallacious, and evidently so in proportion as they are favourable With these remarks we give the following in regard to this concern:—"With respect to the movements at St. Patrick I am glad to say we still continue to get nice stones of ore in sinking below the 120 yard level. Nothing can exceed the promising nature of all we are doing, and I can only say that I would prefer an investment in this mine at anything like 30s. per share to any that I know at present. A most important consideration is that a discovery here would not only be sure to be very extensive, being in the very "pick" of the best measures, but the returns would be nearly all profit, the workings being naturally drained 135 yards deep, as proved, and there is no knowing how much deeper. We are in great hopes constantly of announcing a valuable discovery."

Subjoined are this week's quotations, &c., of mining and metal shares quoted on the Scotch Stock Exchanges:—

Capital. Per share.	Paid up.	Dividends. Rate per cent. per annum. Previous.	Last.	Description of shares.	Last price.
				COAL, IRON, STEEL.	
£10	£7	£ 8½	£ 6½	Arniston Coal (Limited)	7¾
10	10	6	6	Benhar Coal (Limited)	8¾
10	10	6	6	Ditto	7¾
100	50	18s 9d†	41s 6d†	Bolckow, Vaughan, and Co. (Lim.) A.	55½
10	10	10	10	Cairntable Gas Coal (Limited)	8¾
10	10	nil	—	Chillington Iron (Limited)	70s.
32	29	nil	nil	Ebbw Vale Steel, Iron, and Coal (Lim.)	8½
10	5	nil	nil	Fife Coal (Limited)	60s.
10	10	nil	nil	Glasgow Port Washington Iron & Coal (L)	35s.
10	10	—	—	Ditto Prepaid	35s.
10	10	—	—	Lochore and Capledrae (Limited)	80s.
10	10	nil	3	Marbella Iron Ore (Limited)	56s.
10	10	nil	nil	Monkland Iron and Coal (Limited)	57s. 6d.
10	10	5	4	Ditto Guaranteed Preference	5
100	100	nil	nil	Nant-y-Glo & Blaina Ironworks pref. (L)	19½
6	6	nil	nil	Omoa and Cleland Iron & Coal (L. & Red.)	30s.
1	1	15	17½	Scottish Australian Mining (Limited)	40s.
1	8s.	15	17½	Ditto New	8s. 9d.
Stock	100	5	nil	Shotts Iron	91
				COPPER, SULPHUR, TIN.	
4	4	—	—	Canadian Copper and Sulphur (Lim.)	5s.
10	7	20s	20s	Cape Copper (Limited)	59
1	1	15	7½	Glasgow Caradon Copper Mining (Lim.)	22s. 6d.
1	15s.	15	7½	Ditto New	16s.
10	9¾	nil	nil	Huntington Copper and Sulphur (Lim.)	26s.
25s.	23s.	—	—	Kapunda Mining (Limited)	2d.
4	4	—	—	Panulcillo Copper (Limited)	20s.
10	10	nil	nil	Rio Tinto (Limited)	72s. 6d.
20	20	—	7	Ditto, 7 per cent. Mortgage Bonds	13¾
100	100	—	5	Do., 5 p.ct. Mor. Deb. (Sp.Con. Bds.)	57¾
10	10	nil	nil	Russia Copper (Limited)	40s.
10	10	22½	20	Tharsis Copper and Sulphur (Limited)	21¾
10	7	22½	20	Ditto New	15
1	1	—	—	Yorke Peninsula Mining (Limited)	5s.
1	1	—	—	Ditto, 15 per cent. Guaranteed Pref.	17s. 6d.
				GOLD, SILVER.	
1	1	—	—	Australian Mines Investment (Limited)	8s. 9d.
5	5	7s. 6d.	7s. 6d.	Richmond Mining (Limited)	88s.
				OIL.	
10	7	5	6	Dalmeny Oil (Limited)	8¾
1	1	—	7½	Oakbank Oil (Limited)	47s.
1	5s.	—	7½	Ditto	12s.
10	10	—	2½	Uphall Mineral Oil (Limited) "A"	9l. 6s. 3d
10	10	—	—	Ditto "B" Deferred	10
10	8½	5	9	Young's Paraffin Light & Mineral Oil (L).	15½
				MISCELLANEOUS.	
50	25	10	5	London and Glasgow Engineering & Iron Shipbuilding (Limited)	26¾
20	14½	—	—	Peruvian Nitrate (Limited)	10
7	7	20	10†	Phospho Guano (Limited)	10⅞
10	10	6	6	Scottish Wagon (Limited)	11l. 3s 9d
10	4	6	6	Ditto New	87s. 6d.

† Interim. ‖ Per share.

Last day for this account, Sept. 10; settling day, Sept. 13.

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them and such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.

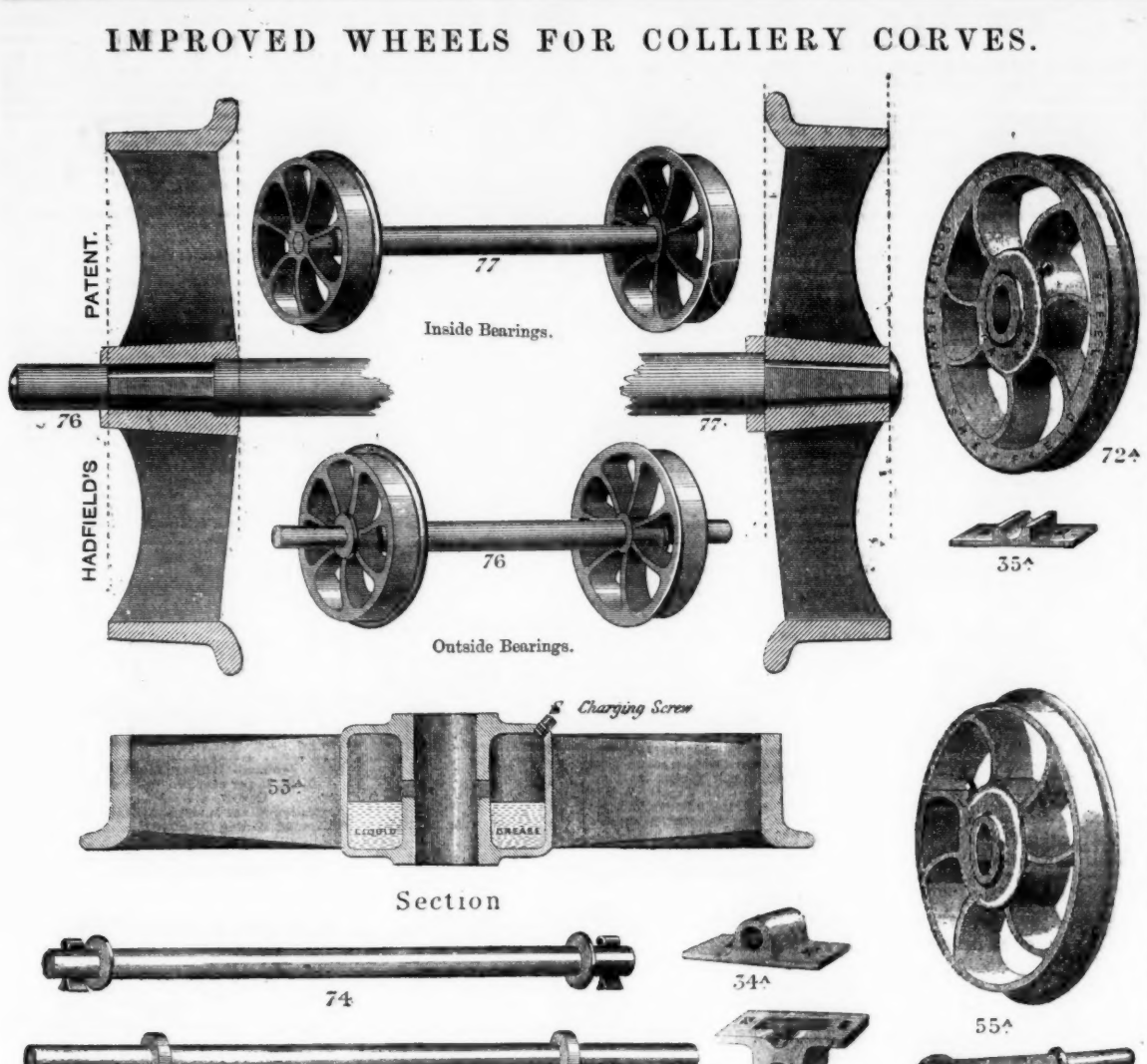
Post Office Buildings, Stirling, Aug. 30.

DRY AMALGAMATION.—For many years past the name of Mr. ALMARIN B. PAUL, of San Francisco, has been well known to the readers of the *Mining Journal* as a successful inventor of apparatus connected with the preparation of ores, and he has now invented an improved pulverising barrel, which is very favourably spoken of by practical men; indeed, they regard it as perfect in every detail. The apparatus consists of a framework barrel or drum, with screens in the framework, and within this are heavy perforated iron plates, which really form the barrel. When the ore is reduced to a given fineness it sifts through these plates and on to the fine wire screens which form the outside circle of the barrel. One of the ingenious features of the barrel is that all ore passing through the iron plates, and not fine enough to go through the wire screens, returns to the inside of the barrel at every revolution. The turned plate forms a protection for fine screens, so no breakage can occur from the heavy quartz used for pulverising the finer. The cylinder is set on axles, and revolves to the left. It is all enclosed, thus preventing the escape of any dust. A very important point of this machine is that it is self-feeding as well as self-discharging, and that it enables ore to be pulverised to any standard of fineness, as per the wire-cloth used upon the frames. The purpose of this pulveriser is not to do away with stamps or other crushing machinery, but to come in as an intermediate one for doing the finer work cheaper, and at the same time increase the capacity of the former by allowing them to work even coarser. Crushing ore only moderately fine can be readily accomplished by stamps, but when you undertake to reduce from (say) No. 20 fine to flour, or even its approximate, then such machinery is not only expensive, but, to do it dry, very disagreeable. This pulveriser of Paul's overcomes all these disadvantages. The capacity of these barrels is only limited by the size. The largest yet made, however, has a capacity of 15 tons for 24 hours, reducing through wire-cloth having 4900 holes to every square inch, or 12 tons reducing to 6400 fine, or 10 tons 8100 fine; this latter is absolute flour.

PUDDLING FURNACES.—The bottom plate of the furnace is according to the invention of Mr. FISHER, C.E., of Pelsall, to be casting with a continuous hole or holes passing any suitable number of times across the volume of the cast-iron forming the plate, or he divides the plate into one, two, or more parts, each being treated as before described, the said holes being used as waterways, which may be fed from any convenient source, and allowed to flow through active, or slowly, according to the heat imparted to the said plate through the fettling of the furnace bottom. The said waterways may be made for convenience by means of sand cores, and passed through from side to side of the cast bottom, and stopped by plugs or by means of wrought-iron tubular elbows or bends, or by so moulding the said plate with cross or connecting cores so as to keep the waterway or ways entirely within the volume of the casting, but dividing such waterways by as many inlets and outlets as may be necessary. Puddling furnace bottoms thus produced are rendered more enduring by being left to expand and contract without restraint by the unequal heat applied to them. In some instances he lays in the mould, above or below the cores, rods of wrought-iron, which may be found necessary to strengthen the plate; or such additional tie rods may be placed in addition across the plate in the direction of the waterways. Furnace bottoms or plates thus constructed are protected in the usual way by the ordinary fettling used in puddling furnaces.

VENTILATING.—For the purpose of ventilation Mr. S. HANNINGTON, of Tonbridge Wells, proposes to admit the air by a pipe which conducts it from the outer atmosphere. In order to filter or purify the air it may be purified by passing through cotton, wool, or other filtering or purifying materials in its passage into the air chamber, from the lower part of which it is conducted by means of a pipe or passage to the upper part of the place to be ventilated. The air chamber is furnished with an air-tight door for the purpose of giving access to the interior when required to renew the filtering materials or otherwise. The air in its passage to the interior of the building may be heated if desired by coming into contact with hot air or water pipes or chambers, or other means of heating the same. The pipe or passage for conducting the air into the interior of the building may be arranged in combination with any piece of furniture contained therein, which is caused to serve as a screen for covering the pipe or passage which conducts the fresh air from the exterior to any part of the interior of the apartment, cabin, railway carriage, or other place to be ventilated.

IMPROVED WHEELS FOR COLLIERY CORVES.



IMPROVED WHEELS FOR COLLIERY CORVES.

The importance of attending to comparatively insignificant details in connection with colliery operations in order to secure the maximum of economy has been pointed out at several meetings of the Iron and Steel Institute, and it has there been shown that even in the oiling of the wheels an important economy can be effected. The method of securely fitting corve or tram wheels is another detail which has received much attention, yet very few of the arrangements proposed have been altogether satisfactory; the speed at which the wagons travel, the severe shocks they continually meet with, and the frequent spragging the wheels have to undergo, severely test not only the strength and quality of the wheels and axles but also the methods by which they are fastened together—hence at numerous collieries many wheels are constantly working loose and causing much annoyance, as well as extra wear and tear, trouble, and expense. The crucible steel castings turned out during the past quarter of a century from the works of the Hadfield Steel Foundry Company, at Sheffield, have secured for them a reputation wherever such castings are used, and it appears that at present more than one-half of the works are employed in manufacturing crucible steel wheels for mining corves, the number of wheels produced exceeding, it is said, that of all the rest of the trade put together, as can readily be understood when it is remembered that the number made reaches 2000 per week.

Among the many recommendations of the Hadfield Company's wheels may be mentioned that they are cast from one-third to one-half lighter than cast-iron, yet they cannot be broken while working, even with the roughest usage. The experience at collieries in all parts of the kingdom proves that these wheels will outlast at least twelve iron ones, which, added to the saving effected in animal and steam power, becomes a very important item of economy in connection with the working expenses. With regard to the reduction of wear and tear much may be attributed more especially to the application of Mr. Hadfield's patented method of fitting wheels upon axles, illustrated in the above diagrams, in which No. 77 shows wheels fitted for inside bearings. The axle hole in the boss of these wheels is cast by special appliances round for a short distance, whilst the remaining and greater portion is slightly tapered square. The axles are forged from the plain round bar to a corresponding shape at each end, and the wheels are then pressed upon these square ended axles by powerful machinery, and afterwards slightly riveted; the full strength of the axle thus entering the boss of each wheel—a matter of great importance—the machine which presses on the wheels securing truth and exactness in gauge. No. 76 shows wheels fitted for outside bearings, a mode which in principle is similar to inside bearings, only that the axle hole is cast in octagonal form, and the axle is forged to suit, but projects through instead of being riveted up. In the case of a wheel or an axle wearing out, bending, or breaking, either can be readily unfitted or replaced. Recently, to satisfy one of the largest colliery companies on this point, it is stated that the same wheel and axle were taken apart, and refitted no less than five times, without impairing the strength of the axle to any appreciable extent. By this very simple and highly effective method we are informed that all wedges, iron hoops, keys, boring, turning, slotting bolts and nuts, washers, and similar unreliable appliances, are dispensed with, and a lighter and much stronger wheel and axle, and a far more reliable, neater, and cheaper fastening is obtained than can be secured by any other method, the wheel and axle being practically so secure that they may be considered as one. As is well known, there are many systems for fitting mining wheels upon axles, but only a few have ever come into practical use; others will never do so, being too complicated, costly, and unreliable. Something simple and effectual is required, and nothing else should be adopted in mining operations.

The extent to which the economy of these wheels has been appreciated will be judged of from the circumstance that although this method of fitting is comparatively new, it is already adopted in hundreds of mines and collieries; upwards of half a million wheels and axles in daily use in Great Britain, on the Continent, and elsewhere being fitted entirely by their patent fast method, a better guarantee of superiority could scarcely be desired. This result is, perhaps, less surprising when considered in connection with the fact that Messrs. Hadfield have had many years' experience in connection with this particular class of work, and that it is this very experience which has enabled them to perfect the design. And it is not inaptly remarked that, as if to doubly prove the advantages of this method of fitting, some firms have recently infringed the patent, and had to be stopped by injunctions, which, however, were very readily obtained.

Valuable in connection with the same subject are Messrs. Hadfield's self-oiling wheels, represented by those of the above diagrams numbered 75 and under. The inventors claim that these possess certain advantages possessed by no other wheels, being specially adapted for collieries, ironstone mines, slate quarries, lead and copper mines, &c., where loose wheels (wheels revolving upon their own axles) are used. The old system of lubricating loose wheels is known to be attended with labour and waste, and as so little of the grease or oil applied reaches the wearing surfaces, and as re-greasing can only take place at fixed parts of the workings, the bosses of the wheels and bearings of the axles soon become dry, and cut each other, thus causing considerable wear and tear, and necessitating extra labour, haulage power, and expense. These defects, it is stated, are remedied by these wheels, the advantages claimed for which are very numerous. Two-thirds, at least, less grease or oil is required than at present used by any known method of lubricating mining wagons, whether by hand, machine, or otherwise; and they effect a very great saving in haulage power, also in wear and tear, being so constructed as never to allow the bearings to become dry. The revolving of the wheel leads out the oil as required, and immediately the wagon stops the lubricator ceases its action. No waste of grease can occur, no matter in what position the wagon may be placed when discharging its contents (even if upside down), and when the wagons are not in use it is utterly impossible for any grease to escape, as it is all stored below the outlet. When once these wheels have been charged with liquid grease (which can be done by any inexperienced person) they do not require any attention or re-greasing whatever for several weeks, or even months, afterwards, in proportion to the distance travelled. These wheels can be readily fixed to any description of wood or iron corves now in use, whether the wheels are upon the inside or outside of the fr... they are exceedingly simple in construction, have no detail, ar... liable to get out of order, and possess great strength, durability ... extreme lightness, being made of crucible steel.

PULVERISING AND SEPARATING MINERALS.

Quite a series of improvements in machinery for pulverising, integrating, and separating minerals have been invented by M... Lipsey, Crosby, Barnhardt, and Mower, of West Hoboken. One improvement consists in the combination of a series of c... bers of successively larger diameters, arranged one outside ... yond the periphery of another, and a series of beaters for revo... therein, whereby a compact mechine is produced. Another ... provement consists in the combination with a chamber pro... with a series of beaters of a chamber of larger diameter com... cating with the former, and provided with a series of beater... voluing in the same length of time as those in the smaller cha... and, consequently, moving at a greater speed, producing a p... vacuum, and drawing from the smaller chamber the lighter ... ticles of the material therein pulverised or disintegrated, wh... they produce a simple and superior machine, which may be ope... with a very small amount of power. They also propose the ... bination with a chamber provided with a series of beaters ... chamber of larger diameter communicating directly wit... smaller chamber, and provided with a series of beaters supp... on the same shaft as those of the said smaller chamber, and re... ing in the same length of time; and likewise the combinati... two or more chambers communicating one with another, pro... each with a series of beaters for revolving therein, and also ... vided with lips overlapping the beaters of each chamber, ... communicates with another chamber, whereby material to b... verised or disintegrated is prevented from passing out of one c... ber into another except at the proper place. They also propo... combination of a series of chambers successively of larger ... meters, provided with beaters for revolving therein, and wit... overlapping the beaters of each chamber which communicates ... another chamber, and with offsets arranged at the inner en... the beaters for deflecting material escaping from one chamber ... the middle of the next, so as to present it properly to the be... therein.

Amongst the other improvements is one which consists i... combination with the supply passage of a pulverising or di... grating machine of means for feeding or supplying the same, ... governor or its equivalent for actuating the feeding or supp... device, so that the feed of the material to be pulverised or di... grated will always be commensurate with the speed at which ... machine is working, and will be automatically stopped when ... machine is working at so slow a rate of speed that the mater... fed into it might choke it. Another improvement consists ... combination with a pulverising or disintegrating machine ... outlet provided preferably at the lower part with an openi... openings, and capable of being adjusted axially by swinging ... ferent angles to previde for separating the finer and lighter ... the coarser and heavier particles of the pulverised or disinteg... material in delivering from the machine. Another improv... consists in the combination with a beater extending longitud... from the side of a disc or spider of a renewable shoe fitting o... ping over the face, inner edge, and outer end of such bea... dowel or projection on the outer end of said beater fitting a ... in the contiguous portion of the shoe, and a rivet, bolt, or o... lent device at the inner end of the shoe securing it to the afo... disc or spider, whereby provision is afforded for properly sec... the shoe in place without perforating and thereby weakenin... beater transversely.

CONTINUOUS ROTARY ENGINE.—The improved motive-pow... gine, invented by MR. J. A. PONCET, of Paris, is fixed on a s... framing which support bearings in which are mounted three ... The main shaft carries a fly-wheel, on which is fixed a large t... wheel with internal teeth, which gear into and drive a s... toothed wheel on a second or crank shaft provided with two c... set at right angles to each other, so as to avoid dead points. ... shaft, by means of a pair of connecting-rods, drives a second ... shaft, upon which is fixed a ratchet-wheel. The fly-wheel ... carries one or more projecting lever or arms, which are carried ... with it, and anti-friction rollers or bowls at the end of these ... as the shrft rotates, come against and lift the ends of a bal... lever mounted loosely on the second crank shaft. This bal... lever is commanded by a spring, the tension of which may be ... lated by a screw, and immediately the end of the balanced le... released from the rotating arms on the main shaft the spring ... draw down the balanced lever into its original position. ... boss or hub of this balanced lever carries a click or pawl, w... takes into the teeth of the ratchet-wheel, so that every ... the lever is lifted up the pawl will pass over the ratchet-teeth ... when the spring pulls down the balanced lever the pawl will ... round the ratchet-wheel, and with it the crank shaft on which ... fixed. The crank shaft in its turn transmits its motion by ... of the connecting-rods to the other crank-shaft, and throug... toothed gearing rotary motion is imparted to the fly-wheel sh...

British and Foreign Safety Fuse Company,

REDRUTH, CORNWALL,

MANUFACTURERS OF

SAFETY FUSE,

FOR MINING AND QUARRYING PURPOSES

PRICES ON APPLICATION.

TO COLLIERY PROPRIETORS.

IMPROVED "REGISTERED" SECTIONS OF SCREEN STEEL

THE DOTTED LINES SHOW THE ORDINARY SECTION, AND THE DARK GROUND THE IMPROVED SECTION.
A saving of at least 20 per cent. is effected by the great reduction in weight of material.—For price and particulars apply to—

JOEL EATON WALKER, STEEL MERCHANT, SHEFFIELD.

NOTICE.—These Sections are Registered.

YEADON AND CO., COLLIERY & MINING ENGINEERS

Manufacturers of WINDING, HAULING, and PUMPING ENGINES, EMMETS PATENT BRICK MACHINE, Boilers ... Fittings, Steam Piping, Donkey Pumps, Lift Pumps, Perforated Clay and Mortar Mills, Round and Flat Rope Pit-head Pul... Wrought-iron Head Gear, ROOFS and GIRDERS, Kibbles, ONE, TWO, and THREE-DECK CAGES, COAL TIPPING and SCRE... ING APPARATUS, VENTILATING FANS, TUBBING, GIRDERS, PILLARS, POINT PLATES, and every description of Coll... and Mining Plant.

CROWN POINT FOUNDRY, LEEDS.

LONDON AGENTS, — HAUGHTON AND CO., No. 122, CANNON STREET E.C.

FOREIGN MINING AND METALLURGY.

The French coal trade remains in much the same condition. No change is, indeed, anticipated until the season is further advanced. Contracts for the winter are only completed in the course of September as a general rule, and this practice is not likely to be readily modified. Coalowners are prepared to make concessions in the case of contracts with immediate delivery, but the case is very different when we come to deal with a winter contract. There is one point, however, as to which coalowners generally show some eagerness, and this is the disposal, at almost any price, of stocks of old coal, which are a source of embarrassment and difficulty at some works. Recent rains have improved the appearance of the French sugar crop. It is much to be desired that an equally favourable report could be made with respect to the condition and prospects of the French metallurgical interest. There is nothing very special to report with reference to the basin of the Loire, which is, after all, for a comparatively local market.

Contracts for coal have been let this week at Liége and Charleroi, to meet the requirements of the Belgian State Railways. The whole quantity for which contracts were let was 202,800 tons. and there was some brisk tendering. A similar adjudication took place in May; the prices of the August contracts, when compared with those fixed in June, did not exhibit any material variation. The syndicate of the Brussels Coal and Metal Bourse recently communicated with the Belgian Ministry for Foreign Affairs, in order to ascertain the position of negociations undertaken with reference to the renewal of the treaty of commerce between Belgium and France. Baron Lambermont replied that the Belgian Government had not lost sight of Belgian interests in the matter, that it was exerting all its influence in their favour, and that it was powerfully seconded by the English Government, which was endeavouring in a similar manner to protect English interests. Some fine steamers flying the Belgian flag are now trading between Belgium and Algeria. These steamers belong to MM. David Verbist and Co., of Antwerp. Algerian commercial men have shown themselves very well satisfied with this new service, which has enabled them to establish business relations with rather distant countries.

Contracts have just been let at Brussels for the supply of 16 locomotives divided into three lots, and weighing from 30½ to 31 tons each. The lowest tenders were delivered by MM. Carels, of Gand, who required 1538*l.* per engine; by the Couillet Company, who required 1557*l.* per engine; and by the Haine St. Pierre Company, who required 1584*l.* per engine. There were 14 tenders delivered; and upon the whole, the competing firms and companies kept remarkably close together. The highest tender required 1676*l.* per engine. The John Cockerill Company, the Belgian Company for the Construction of Engines and Plant, and the Belgian Colliery and Metallurgical Company, failed to secure contracts for any of the engines. The engines ordered are to have furnaces on the Belpaire system. The tenders will be seen to have been distinguished by very low prices; this is due to the fact that the Belgian rolling mill establishments are in great need of orders, and are fain to accept scarcely any profit in order to occupy their staff and tools. The Belgian rolling mills are also working at low rates. but are generally well off for orders. The thinner description of plates are in some demand, there being an enquiry on export account. Cleveland pig, as well for refining as for casting, feels the influence of Scotch competition to some extent, and the Belgian blast-furnaces are somewhat inactive accordingly.

Official returns which have just appeared show that in the first seven months of this year the imports of pig into France amounted to 87,000 tons, as compared with 109,000 tons in the corresponding period of 1876. The imports of iron and steel remained much the same in each of the two years. The exports of iron of various descriptions from France in the first seven months of this year only amounted to 109,000 tons, as compared with 135,000 tons in the corresponding period of 1876. At an adjudication for 5000 tons of steel rails which recently took place at Milan, on account of the Upper Italy Railway Company, French works abstained from competing. The contract was awarded to the Union of Dortmund, at 9*l.* per ton; the highest tender scarcely attained 8*l.* per ton. The Terrenoire Company, it will be remembered, recently obtained an order for steel rails from the Madrid, Saragossa, and Alicante Railway Company, at 8*l.* 5s. per ton. The French steelworks are badly off for orders at present, and can afford to wait for better prices than those which had been obtained at Milan. The French iron trade has not experienced any material variation during the last few days. In the East of France pig has been selling at 2*l.* 9s. 6d. to 2*l.* 10s. 5d. per ton. Spain has just signed a commercial convention with Germany, Austria, Belgium, Sweden, Norway, Italy, Switzerland, Russia, Portugal, Turkey, and Morocco, by virtue of which manufactured iron coming from these countries is admitted into Spain at 11s. per ton, while similar iron coming from France, which has not yet signed the convention, will have to pay 15s. 7d per ton.

Business in copper been in rather a languishing condition at Hamburg. Chilian, in bars, has made 73*l.* per ton; ditto, ordinary description, 71*l.* per ton; ditto, in ingots, 75*l.* per ton; best selected English, 77*l.* per ton; and pure Corocoro minerals, 74*l.* per ton. Upon the German copper markets business has been restricted; prices have remained without any improvement. At Paris the tin trade has not been very active. Banca has been quoted at 73*l.* 6s., Billiton 72*l.* 16s., Straits at 70*l.*, Australian at 68*l.* 8s., and English at 70*l.* per ton. The Marseilles tin market has been comparatively inactive, and prices have not exhibited any very great change. The German tin markets have been inanimate, and prices have shown a slight downward tendency. At Paris lead quotations have presented scarcely any change; the German lead markets have been dull, and prices have been nominally unchanged. The French zinc markets have been quiet; rolled Vieille Montagne has realised 24*l.* 5s. per ton. The German zinc markets have been slightly firmer.

ARIZONA GOLD AND SILVER PRODUCTION.—The present aggregate monthly shipments of gold and silver from Arizona amount to $300,000, or at the rate of about $3,250,000 for twelve months. This is the product of a few mines which as yet have been worked of the many that are known to be as rich as any that have been worked. Pima County ships in silver bullion about $40,000 monthly. Pima contributes $50,000, and Maricopa about $20,000, chiefly from the Vulture Mine. Yavapai and Mojave counties together furnish $30,000: Yuma county have out $20,000.

Mining Record (New York).

RATCHET BRACES.—The working handle of the brace invented by Mr. H. WATERSON, of Aston, near Birmingham, turns upon the shaft or axis to which the drill or tool is affixed, the end of the said handle in which the axis of the brace works being forked, the two prongs of the axis being formed by the two branches of the fork. The shaft or axis of the brace carries two bevil toothed wheels situated within the fork of the handle. One of the said bevil-toothed wheels is fixed to the shaft or axis, and the other turns loosely thereon. Between the two bevil wheels described there is an intermediate bevil wheel is situated. This third bevil wheel is at right angles to the other two, and is in gear with both of them. The said third bevil wheel turns loosely upon an axis on a small supplementary handle, which handle is connected to the brace by the brace axis passing through a hole in its inner end. The said small supplementary handle is situated, and in its normal position is in line therewith. The fixed and loose bevil wheels on the brace axis are provided with ratchet wheels, the teeth of the said ratchet wheels being turned in opposite directions. Two pawls turned in opposite directions are carried by the working handle, the said pawls engaging respectively with the ratchet wheels described above, the small or supplementary handle is held stationary by one hand, a reciprocating motion is given to the working handle by the other hand. By this motion of the working handle in one direction motion is given to the axis through the pawl, which engages with the fixed bevil wheel, the said pawl making a ratchet motion. When the motion of the working handle is reversed the loose bevil wheel makes the return motion, and has consequently no effect on the said fixed bevil wheel, but the pawl of the loose bevil wheel is now during its advance motion, urging forward the loose bevil wheel, the motion of which is communicated through the third or intermediate bevil-toothed wheel communication to the fixed bevil-toothed wheel in the same direction as that in which it had been moved by the action of its own pawl. There is thus communicated to the axis carrying the drill or tool an almost continuous motion in the same direction by the to-and-fro motion of the working handle, the only interruption to the continuity of the motion occuring at the moment when the direction of the motion of the working handle is changed.

BLAKE'S PATENT STEAM PUMP.

MORE THAN 10,000 IN USE.

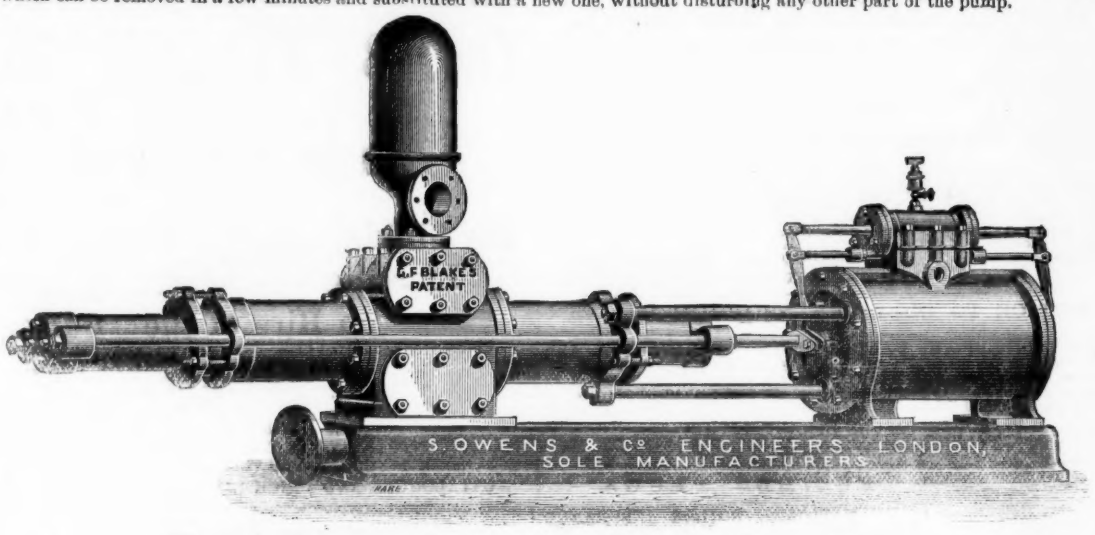
SOLE MAKERS FOR GREAT BRITAIN,

S. OWENS & CO.,

Hydraulic and General Engineers, Whitefriars-street, London;

Agent in Scotland: W. Hume, 195, Buchanan-street, Glasgow.

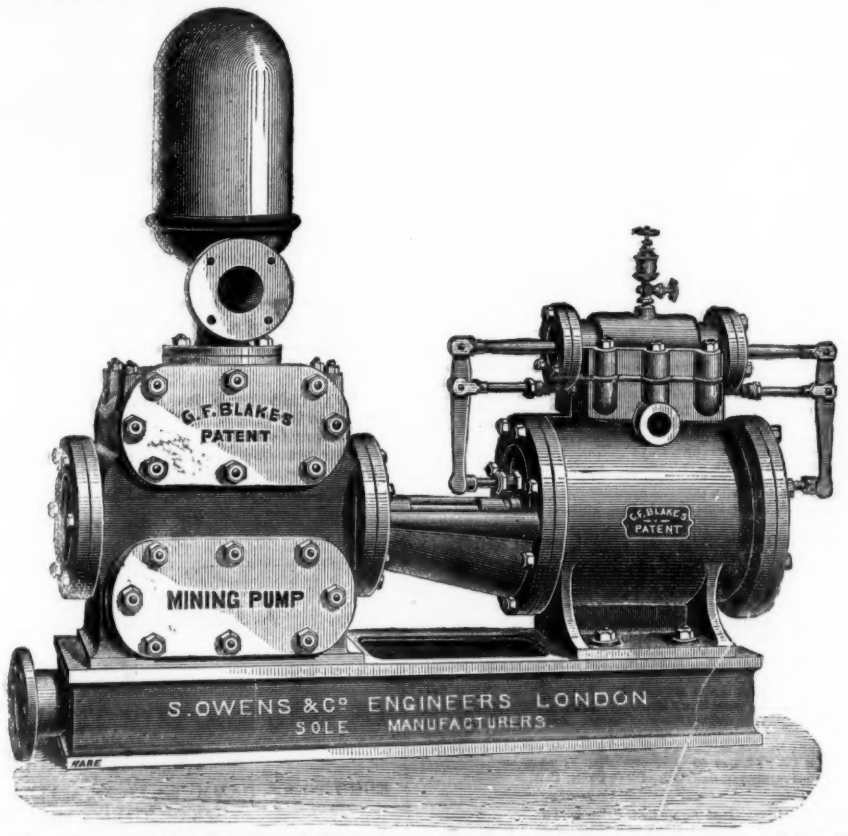
These PUMPS from their SIMPLICITY, RELIABILITY, DURABILITY, and ECONOMY are SPECIALLY SUITED FOR MINING PURPOSES, where large quantities of water require to be raised from great or medium depths with CERTAINTY. They are double-action in their construction, throwing a constant stream of water, can be made of any stroke to suit the space in which they have to work, can be arranged with any combination of steam and water cylinders to suit the pressure and lift against which it is desired to work them, are made of the very best materials and highest class of workmanship, and all working parts can be readily got at by any ordinary workman, and replaced if necessary by a duplicate part (all such being interchangeable) in the shortest possible time. For situations where gritty and sandy water has to be pumped the DOUBLE-PLUNGER PATTERN is recommended. Where space is limited the PISTON PUMP is better suited, a novel feature of which is the PATENT REMOVEABLE LINING, which can be removed in a few minutes and substituted with a new one, without disturbing any other part of the pump.



Blake's Improved Double-plunger Steam Pump.

S. OWENS AND CO.,

In placing the BLAKE STEAM PUMP before the mining world, believe they are offering the BEST, MOST RELIABLE, and ECONOMICAL PUMP that has yet been made, and solicit an inspection of various sizes in operation at their works, Whitefriars-street, Fleet-street, London.



Blake's Improved Mining Pump, with Patent Removeable Lining to Pump Cylinder,

Any combination of these Pumps may be had to suit circumstances. The following are some of the SIZES SUITABLE FOR MINING PURPOSES:—

Dia. of steam cylinders.. In.	12	12	12	12	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	24	24
Dia. of water cylinders.. In.	3	4	5	6	4	5	6	4	5	6	8	4	5	6	8	5	7	8	9	6	8
Length of stroke ... ... In.	18	18	18	24	24	24	24	24	24	24	24	24	30	30	30	30	30	36	36	36	42
No. of strokes per minute..	30	30	30	30	25	25	25	22	22	22	22	22	22	22	22	20	20	17	17	17	15
Quantity in gallons per hour, approxmately ...	1440	2610	4200	5940	2940	4620	6600	2646	4158	5940	10620	2646	5160	7500	13260	4586	9000	12360	15660	6720	12000

PRICES FOR THE ABOVE, OR ANY SPECIAL SIZE, AND ILLUSTRATED CATALOGUES FURNISHED ON APPLICATI O

PATENT CONDENSERS

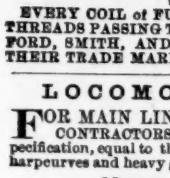
Can be supplied for any size pump to effect a saving of fully 30 per cent. in the consumption of fuel, greatly increasing their efficiency

The Blake Pump will work under water, and as efficiently with compressed air as with steam.

BLAKE'S DONKEY PUMPS FOR FEEDING BOILERS KEPT IN STOCK.

BICKFORD'S PATENT SAFETY FUSE
FOR CONVEYING FIRE TO THE
CHARGE IN BLASTING ROCKS, &c.

Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862 and 1874, in London; at the "IMPERIAL EXPOSITION," held in Paris, in 1855; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXPOSITION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Altona, in 1869; TWO MEDALS at the "UNIVERSAL EXHIBITION," Vienna, in 1873; and at the "EXPOSICION NACIONAL ARGENTINA," Cordova, South America, 1872.



BICKFORD, SMITH AND CO., of TUCKINGMILL, CORNWALL; ADELPHI BANK CHAMBERS, SOUTH JOHN-STREET, LIVERPOOL; and 85, GRACECHURCH-STREET, LONDON, E.C., MANUFACTURERS AND ORIGINAL PATENTEES of SAFETY-FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—

EVERY COIL of FUSE MANUFACTURED by them has TWO SEPARATE THREADS PASSING THROUGH the COLUMN of GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as THEIR TRADE MARK.

LOCOMOTIVE TANK ENGINES

FOR MAIN LINE TRAFFIC, SHORT LINES COLLIERIES, CONTRACTORS, IRONWORKS, MANUFACTORIES, &c., from a superior specification, equal to their first-class Railway Engines, and specially adapted to harpecurves and heavy gradients, may always be had at a short notice from—

MESSRS. BLACK, HAWTHORN, AND CO.,
LOCOMOTIVE, MARINE, AND STATIONARY ENGINE WORKS,
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GENERAL MERCHANTS AND AGENTS
LEITH OFFICES, MOORFIELDS, LIVERPOOL,
PURCHASERS OF
SULPHUR ORES, MANGA ESE, AND ALL DESCRIPTIONS OF MINERAL PRODUCE.

THE BIRMINGHAM WAGON COMPANY
(LIMITED)

MANUFACTURE RAILWAY CARRIAGES and WAGONS of EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract. MANUFACTURERS also of IRONWORK, WHEELS, and AXLES. EDMUND FOWLER, Managing Director.

WAGON WORKS,—SMETHWICK, BIRMINGHAM.

NOTICE TO COLLIERY PROPRIETORS, &c.

THE LIVERPOOL MARINE STORE COMPANY BUY ALL KINDS of CONDEMNED HEMP PIT ROPES, LINES, &c., in any part of the kingdom, giving the HIGHEST CASH VALUE for same, and on receiving samples will at once tender prices. All communications addressed to the Company's Head Offices,

72, SOUTH CASTLE STREET, LIVERPOOL,
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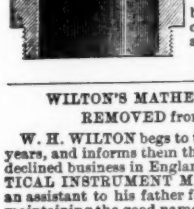
FUSIBLE PLUGS.



THE NATIONAL BOILER INSURANCE COMPANY (LIMITED), 22, ST. ANN'S SQUARE, MANCHESTER, have acquired the PATENT of most important IMPROVEMENTS in DOUBLE CONE FUSIBLE PLUGS.

When fusion occurs a new cone is immediately inserted without removing the manhole cover, and the boiler at once re-started.

The fusible metal is quite protected from deterioration by fire, entire detachment of the inner cone and a large clear opening is secured in case of deficiency of water, and serious injury or explosion of the boiler prevented.

No other Plugs possess such valuable advantages.

For full particulars, apply as above.

WILTON'S MATHEMATICAL INSTRUMENT ESTABLISHMENT,
REMOVED from St. Day to A. JEFFERY'S, CAMBORNE.

W. H. WILTON begs to thank his friends for their liberal support for so many years, and informs them that (having opened business at Valparaiso) he has now declined business in England in favour solely of Mr. A. JEFFERY, MATHEMATICAL INSTRUMENT MAKER, CAMBORNE, whom he considers (having been an assistant to his father for several years) is in every way capable of creditably maintaining the good name universally awarded to Wilton's instruments.

A. JEFFERY

Respectfully begs to inform Mine Managers, Surveyors, Engineers, &c., the having purchased Mr. Wilton's business, and the very valuable acquisitions and appliances belonging thereto, he has enlarged his Mathematical Instrument Manufactory, and is prepared to supply THEODOLITES, DIALS, POCKET DIALS, LEVELS, TRAVERSING and PLAIN PROTRACTORS, CASES OF DRAWING INSTRUMENTS, MEASURING CHAINS and TAPES, ASSAYERS' SCALES and WEIGHTS, ENGINE COUNTERS, and, in short, every description of Instruments used in SURVEYING, MEASURING, MAPPING, &c.

Repairing in all its branches promptly attended to.

GEOLOGY.—In the Preface to the Student's ELEMENTS OF GEOLOGY, by Sir CHARLES LYELL, price 9s., he says:—"As it is impossible to enable the reader to recognise rocks and minerals at sight by aid of verbal descriptions or figures, he will do well to obtain a well-arranged collection of specimens, such as may be procured from Mr. TENNANT (149, STRAND), Teacher of Mineralogy at King's College, London." These Collections are supplied on the following terms, in plain mahogany cabinets:—

100 Specimens, in Cabinet, with three trays	£2	2	0
200 Specimens, in Cabinet, with five trays	5	5	0
300 Specimens, in Cabinet, with nine drawers	10	10	0
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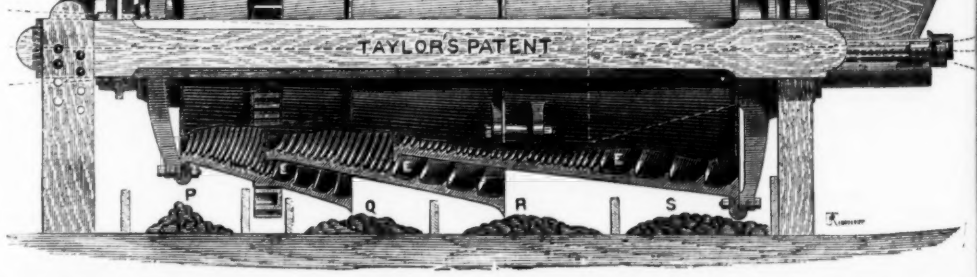

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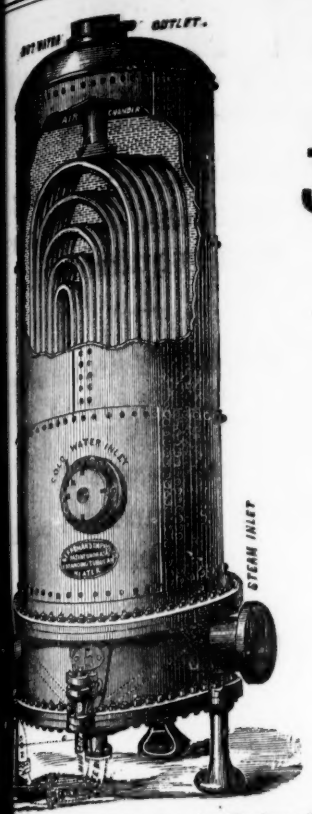

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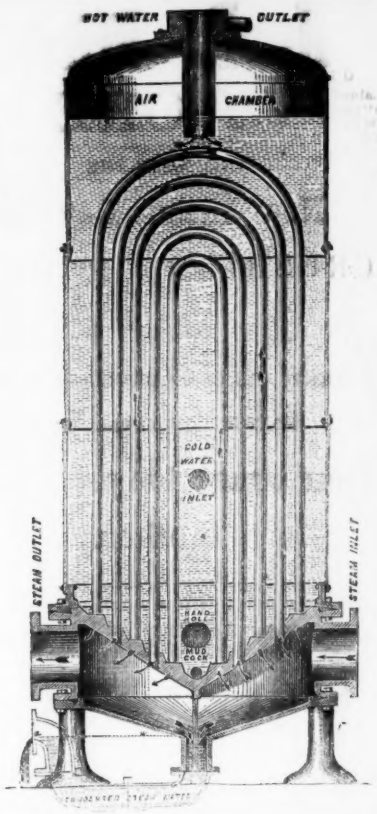

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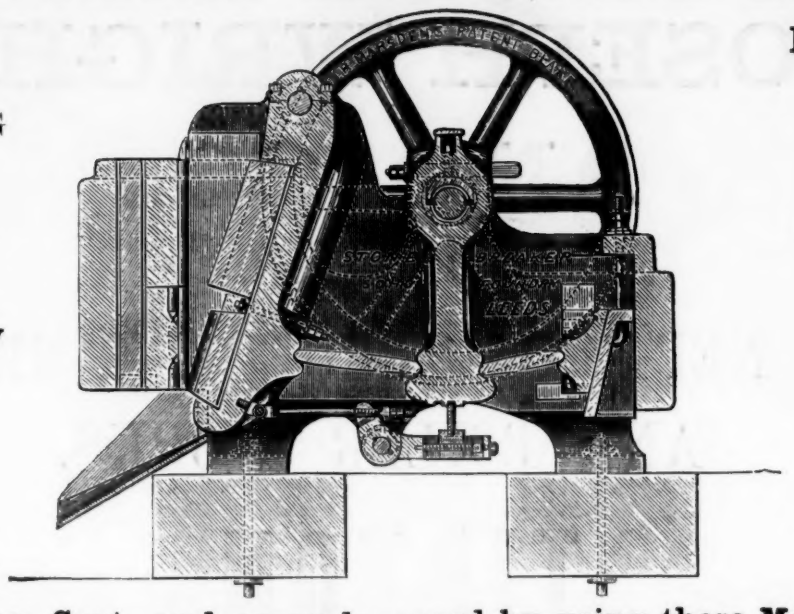

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